Institutions
of
Physick.

I am sorry, my respected friend, that I should not have compleated the inclosed and given it to you before your departure, as I then could have given you verbal explanations respecting the busineſs which perhaps I may not be so well able to convey by writing — I think that the plate should be made of Tin, & lined with soft leather, either Buckskin, or well-dreſsed sheepskin — the Bag which is to contain & support the ruptured part should be attached to the lining, & hang through the hole made in the plate — the hole or opening, which I have made for this purpose in the pattern, will probably require to be enlarged, & perhaps ~~my~~ made lower than it now is — this you will be able to determine by applying the pattern to the body — the lower part of the plate should be made concave on the internal ~~part~~ side, so as to fit close to the body, which I have endeavoured to represent by the slits in the paper — the straps that go round the body should be made of soft but firm leather, fastened to each end of the plate, where I have made the oblong ~~to~~ openings, & perhaps a flat Buckle to confine them behind would be attended with leſs pain & inconvenience than tying them — the openings on the upper part of the plate are for the straps that are to go over the shoulders for the purpose of supporting the plate — these straps must be attached behind to the strap~~s~~ which goes round the body, and connected by a short strap ~~behind~~ some where near the shoulders — I think the lining of the plate should be fastened to the plate by means of small holes in the tin, which I have represented by dots on the pattern — and especially round the opening in the center of the plate —

Reading Beatty's
December 25th „ 1779

Fish Kill.

Institutions of Physick—

The Institutions of Physick, do not consist in mere theoretical speculations — they are designed to illustrate & ſet forth the rules of practising Physick — In order to do this, a Physician ſhould be well acquainted with the State of the Body in health, & all its deviations from it in disease — he ſhould know also, how the various powers of Nature affect the Body so as to induce diseases, which is the Study of *remote Causes*. — The Buſineſs of the Institutions of Physick is to deliver the general Doctrines, or principiles of Medicine. — We ſhall then — 1st treat of the doctrine of health, which is called *Physiology* — 2d. of the doctrines of diseases which is called *Pathology*. — 3d. of the operation of Medicine in curing Diseases, which is called *Therapeutics*, or the *Methodus Medendi*. — In *Physiology*, I ſhall often take occasion to point out the *Pathology*, or diseases to which the part we have treated of, is subject — by this means, we ſhall better underſtand the nature & functions of the different parts of the human Body in health. — We ſhall divide our *Physiology* into two parts. — 1st as it treats of the functions peculiar to both Sexes, or the whole human ſpecies — & 2d. as it treats of those functions which are peculiar to each of the Sexes. — Lect^{r}. 2d. — We ſhall begin with firſt explaining the *nervous System*, as the Brain & Nerves are primary Agents in all the functions of the Body — even the Action of the Heart & circulation of the ~~Body~~ Blood, depend upon an influence of the *nervous power*. — after this we ſhall proceed to the distribution of the Fluids, or the circulation of the Blood. I ſhall call this the Hydraulic part of our System, as the Blood in its circulation is ſubject to the common Laws of Hydraulic's. — We ſhall then explain in what manner the fluids are constantly renewed — this will constitute the 3d. part of the *Physiology*, which we ſhall call the chymical part of our System — this you may readily ſel includes those functions which are called Vital & natural — after this, we ſhall subjoin an Account of the functions that are peculiar to each of the Sexes — Before I enter upon a diſcuſsion of the nervous System I ſhall ſay a few things upon a ſimple Fibre, or ſimple Solids. — I ſhall divide this part into four heads (a) of the different forms (b) of the more general functions of the ſimple solids (c) I ſhall consider the different States of the Solids which affect them (d) of the Pathology of the ſimple Solids — ~~of the Pathology of the ſimple Solids~~ — of the different forms of the Solids you know from Anatomy, there is a cellular texture, you will find it in Dr Haller very fully diſcuſsed. — we never find even two fibres applyed ~~to the~~ together without the interpoſition of the cellular Membrane. — Some Anatomists ſuppoſe the whole Body cellular, more loosely, or ~~more~~ closely compacted together, the membranes were nothing but close, compacted cellular Substances, — the Bones themselves

4) were originally membranous, therefore we may presume they were likewise cellular does this apply to the Nails, horns, hoofs &c of Animals? this I think very doubtful, but it ~~very~~ does not relate to our present purpose — even supposing part of the Body fibrous, it does not affect their texture in the least; — When we come to examine them, we shall find them both the same. See *Dr Haller* *de* *fibra* & *tela* *cellulosa*, in the beginning of his *primæ lineæ*. — We allow the existence of *fibres* in the Muscles & Tendons, but they are always distinct from the cellular substance, even the medullary part of the Brain appears to be arranged in a fibrous manner, & when we consider that the nerves are continued from the *medulla*, we may presume the nerves have a fibrous arrangement, especially when we add to this that the Nerves are the *Embrio* parts of the Body, & these we are sure are fibrous. — We infer this by the simple & distinct Sensations, which are communicated by every single

Nerve to the Brain — The application of this will appear more fully hereafter, when we are shewing how far every part of the Body is derived from the Nerves. — I cannot help thinking that the fibrous structure is the most original, & that the cellular arises from it. — Lecture 3d. I mention this because a late french writer, *M. Le Bourdeaux*, who has written on the cellular texture of animals, in which he tells us he has demonstrated fibres in what has been supposed to be cellular — he observes that these fibres are found in all Animals — hence the powers that produce them are always uniform & the same. — All changes then in the Solids, are in the *cellular texture* and not in the *simple fibres*. — The *Hypothesis* is very ingenious, but cannot be supported. His notions of fibres are taken only from Muscles, & his observations were made with microscopes, which we know are very fallacious. — A late Author has mentioned the same opinion, but I think with less success than *M. Le Bourdeaux*. — we must consider ~~fibres~~

(b) Muscles not as fibres, but as organiz'd ~~Bodies~~ Bodies, as we shall ~~consider~~ shew hereafter.

(b) The *functions* *of the Solids*. Solidity was necessary to give firmness to the Body, which is always exposed to injuries & accidents, as also to serve as agents in promoting the ~~function~~ circulation of the fluids — it was necessary that the Solids should have a certain degree of *cohesion*, *flexibility*, & *elasticity*, which we observe in them — all the Solids in our Bodies, is possessed ~~on~~ of one of these three ~~Bodies~~ properties, or of all of them, as was necessary for their functions. —

(c) *The different states which affect the cohesion, flexibility, & elasticity of the Solids.*

1st Their *Cohesion* depends upon their nature as mixed Bodies — that is upon the difference of matter which constitutes the Solids, united more or less according to the matter of which they are composed. — *Dr Boerhaave* supposed that all the ~~Solids~~ are composed of Earth & Gluten, or ~~that~~ they were heterogeneous agregates, in the same manner as Mortar ~~or cemented with~~ which is Sand, cemented with Lime — but this they infer from calcinations & from a gluten, which is extracted from Papin's Digester — to the 1st viz. Calcination, we object all that can be against chymical analyses in general, it will by no means yield those principles of which it is composed, such as ~~flour, water~~ flour, water, eggs &c an arrangement is given to the matter and a new compound is formed. — the Earth in the Solids is the Basis of the Gluten, & can be extracted from it

It is unphilosophical to seek for the cause of Solidity, as it does not arise from any one elementary body, but from a conjunction of a considerable Number of them. — thus Vegetables, are resolv'd into the same Earths — But can it be the cause of their Solidity? No. — even the Earth is a compound of Air and of Salt. — This Doctrine arises from the old corpuscularian System. The Solidity then, of all Bodies depend upon a certain arrangement which is altered by fire, the same principles when

8) differently arranged would perhaps form a soft Body. — As to the 2^d Argument it proves nothing — the gluten arises from a decomposition, & did not preexist in the Body. — Having rejected the Hypothesis of Boerhaave, I now add, that altho' we now find heterogeneous masses in Nature, yet we have proofs that the animal Solids are composed of homogeneous aggregates — they were originally in a fluid form, & by the dissipation of moisture became solid — thus a Spiders web, being drawn out becomes solid, tho' it lay in the Spider in a fluid ~~State~~ — besides the animal Solids are transparent, which shews their simplicity. — I will not deny but they are compounds, for I believe Nature has presented us nothing in a simple form — the Chymists indeed tell us of Air, Salt, Sulphur &c entering into the composition of all Bodies — but this Notion is now exploded — This compound may differ in the proper proportion of its parts, or from the innovation of foreign matter. — On this the different states of Cohesion, Flexibility, & elasticity may depend — But when these Variations of Proportion take place, or when foreign

matter is innuated, is difficult to tell— — we can hint at one or two causes only— 1st in the *Scurvy*, when ſome degree of putrefaction takes place; a late ingenious Author has ſhewn, in that it is occasioned by a defect or abstraction of *Air*, which is one of the constituent parts of the *animal* *Solids*. 2d In many Diseases, as in Cancers; where ſome foreign matter is introduced, & changes the State of Cohesion. 3d Water when introduced may alter the aggregation of our Solids, ſo that greater or leſs ~~a~~ proportion of the fluid, may change the State of Cohesion of the animal Solids. All nutritious matter is applyed in a watery form — now if this is ſent in too great ~~a~~ proportion, or if it has not been properly abstracted, or if after being abstracted, it is again effused, it follows of consequence we ſhall ſee a change in the Nature of the Solids — Again if this fluid is sent in too ſmall a proportion or if too much is abstracted or diſsipated, then a difference of aggregation will likewise follow: the direct reverse of the former, viz. the Solids will become more coherent, less flexible, & more liable to diseases — I speak here of the soft Solids. — — I shall have occasion to say hereafter that the Bones are composed of heterogeneous parts. — Dr Bryan Robinson, by his experiments on animal fibres, found that all Liquids tend to elongate them, but never found any thing ~~to~~ that thus relaxed. or elongated. — From what he has said, I would infer, that no fluid relaxes more than hot Water, except Spt. Vit. which acts rather as a solvent than a relaxer — a solution of comm^n Salt relaxes the least of any ~~fluids~~ Liquid, the reason of which is owing to the Salt's preventing the Water's having a free ingress into the anim^l Solids, & this is the Case with all the impregnations of water — I would not however have you trust too much to the experiments — for 1st — He used human hairs as animal Solids, now they are so close & compact in the organization, as not to admit the insinuation of ~~solid~~ fluid Bodies, as readily as other parts of animal Matter — since he tells us, that oils relaxed very little; now we know that oils relax ~~[illegible]~~ the most of any fluids when applied to the Skin. 2^d. He is very inaccurate in his chymistry, and very loose in his chymical reasoning, for he never distinguished between the different kinds of Spirits he used, nor does he seem to understand the nature or difference between the various kinds of alcaline Salts — he tells us Vinegar relaxes leſs than Water, but every Anatomist will tell you that Vinegar softens the Bones more than any fluid in nature — I wish ſome of you Gentlemen would repeat these experiments with more accuracy. — Dr. Hale, in his *Hamistatics* gives us ſeveral experiments, that lead to more genl. Conclusions on this ſubject — altho' his manner of conducting them don't ſeem altogether proper —

We return now to consider the *animal ſolids*, which we ſuppoſed to be compoſed of *Earth* *Water* & *other Matter* — its strength or ſolidity depends upon the proper proportion of this matter to the water — we ſhall enquire into the causes which give these different proportions of fluid & solid matter — they will depend 1st upon the quantity & quality of nourishment taken in & the condition of its application — too much nourishment introduced, tends to increase the proportion of water, especially if no exerciſe is used to diſsipate the superfluous moisture too little nourishment gives ſmall & rigid fibres — with regard to quality they act in

12) proportion to the nutritious matter they contain — the more nutritious the aliment is, the larger & stronger fibre it gives, & *vice versa*. — Water when combined with nutriment tends to make it go farther, as those who raise Calves can witness — from whence we see the necessity of nourishment being applied in a liquid form. — *Cohesion* & *flexibility* are different in different *constitutions*, *ages*, *Sexes*, & *temperaments*, (the *elasticity* of the Solids depends not only on the constituent parts, but on the arrangement likewise) the growth of the Body will depend on the State of the evacuations: too great exhalation or perspiration prevents ~~nourishment~~ nutriment (tho' taken in ever such quantity) from being applied to the nourishment of the Body. 2d. It will depend upon the State of the assimilatory powers, therefore neither quantity nor quality can give nourishment, unless they are united to these powers. 3d. It will depend upon the powers which ~~will~~ apply it, such as exercise, & the temperature of the *Air*, & other circumstances not understood, such as perhaps

preſsure &c. Exercise tends to harden the Solids, hence hard labour in the early part of Life tends to limit the growth of the Body.— Heat, by increasing the motion of the nutritious fluid thus increases the quantity applied.— Hence people arrive ſooner at their *Achme* in warm Countries than cold.— Dryneſs increases the effects of heat & cold — moisture diminishes them both — these influence the growth of the Body considerably.— 4th It will depend upon the original Stamina of different Constitutions which cannot be investigated by us.— We ſhall now point out the several causes of Tension in the Body — 1st The tension of the fibres will depend upon the Bones they are attached to — they will therefore be greatly influenced by the groth of the Bones. 2d The fibres of the Body are constantly stretched by weights appended to them, such as one Bone prevailing over another, our Dreſs, occupations in Life &c — ſome parts of the fibres of the Body, are at ſome times overstretched by the matter they contain.— ſuch as the Intestines & Stomach, which are over distended with aliment or wind — when the tension of these is destroyed, we find the whole Body brought into Sympathy — We find the Lungs greatly influence every fibrous part of ye Body — hence when we want to exert the whole Body we fill the Lungs with a large inspiration — the Thorax & Abdomen are kept in a ſtate of tension by the vapour in them, which is in an elastic state — this too, I believe, tends to keep the cellular membrane in its proper state of tension. — We have ſome reason to think the cellular is a permanent, aerial membrane, constantly filled with Air — consult Mr. Tenac on the Subject — If this is the Case, may not the Air tend to keep the fibres in a ſtate of tension? — But further if the fibres are hollow, may they not be filled with a subtle fluid which contributes likewise to keep them tense? These causes hitherto pointed out are internal, but there are ſeveral external cauſes which influence the ſtate of tension in the Body, as the different State of the incumbent Air. — The tension is farther kept up 1st by all the parts of the Body being united together by more than one fibre, or membrane — now if any of these are destroyed, the tension will of consequence be diminished, as we ſee in Aneurisms from the internal Coats of an Artery being worn away. —

2d The State of tension will be varied by the exerciſe or action which the fibres undergo. 3d The fibres will be firm & elastic, in proportion as they are filled with vapour, but if they are filled with inelastic matter, instead of vapour, a flaccidity will be induced. 4th A morbid rigidity will be induced when that which forms the Bones is effused in the cellular membrane. 5th A rigidity will be induced when the coagulable Lymph stagnates in the cellular membrane. 6th A morbid flaccidity will be brought on when a solid matter is washed from a part to which it belongs, as in the Cases where the Bones grow soft — this may be occaſioned by too much water being innated into them. — But why don't we find them ſwell if this be the Case? We generally find them diminished — The Water must ~~[illegible]~~ then act as a ſolvent, & thus wash out the ſolid parts of Bones — but how can I think it has any kind of Acrimony? 7th The state of tension in the cellular membrane will be varied according as it is kept longer or ſhorter in a contracted or ſtretched state. (d) We come now to treat of the Pathology of the simple solids but of this we have hinted pretty largely when

16) speaking of their *Physiology* — I shall point out 1st the morbid affections, & 2d endeavour to point out their causes. 1st The morbid affections are to be considered in two views (a) *the naturally soft parts* (b) *the naturally hard parts*. (a) The naturally soft parts, are liable to diseases from the excess or defect of *cohesion*, *elasticity*, or *flexibility* — we must observe they are even in a healthy state different, in different ages — what is *rigidity* in a young Person, is *health* in an old one — the first diseases they are subject to, are *debility*, *flaccidity*, & *laxity* — by *debility*, I understand a weakness in the state of *cohesion*. — By *laxity*, a defect of *firmness*, *cohesion* & *elasticity* being given, & arises from an excess of fluid matter in the *Solids*, which destroys their *firmness* without lessening their *cohesion*. By *flaccidity*, I understand a defect of *elasticity* — I believe it is seldom seperated from *laxity*. But we shall consider them as different. Diseases from excess of cohesion, elasticity, & flexibility, are 1st too much rigidity, when flexibility is destroyed, which induces too much elasticity — as they are never parted, I include them both together.

(b.) The diseases of the hard parts are of three kinds 1st The hard consistance with weakness of Cohesion 2d where the hard consistences remain with excess of Cohesion 3d where the consistence in the hard parts is lost or destroyed. 2d We now come to enquire into the remote causes of these Diseases. — 1st Debility; this depends (a) upon a weakness of the original stamina (b) upon a want of nourishment, or a want of proper assimilation or application of nourishment (c) it depends on Aliment that contains too little nutritious matter, or that abounds too much wt water, thus the Scurvy, which depends on debility, is brought on by vitiated Aliment. this we prove from old wounds breaking out afresh, which shews how much the cohesion of the whole is destroyed (may not the Rickets, Scrophula &c depend on this cause) (d) it depends on corrosive powers applyed from without, wh distinguishes this head from the last — thus the matter discharged from Cancers induces (e) a frangibility in every part it touches. It depends on too much ~~ex~~tension, called by Doctr Gaubius, distensio ruptura proxima (f) upon a loss of some of the fibres, which connect ~~of~~ the

18) Solids. Thus an Artery when one of its Coats is broken, is said to be in a state of *debility*

19) *Debility*, with *frangibility*, depends upon Moisture being dissipated from Parts, to wh. it belongs, as from the Skin. 2d. *Laxity*. This is distinguished from *debility*, as it brought on rather by excess than defect of motion. The remote Causes of *Laxity*, depend (a) upon the original *stamina* of the Constitution, which determines the fibres to be more lax in some persons than in others (b) upon abundant watery nourishment (c) upon a want of drying powers applied to the fibres — Solids become such by an abstraction of humidity — when this is not abstracted, a *laxity* is induced — Exercise is the chief of these applied ~~powers~~. (d) upon the application of relaxing powers, which are (a) heat (b) moisture — heat relaxes by resolving the constituent parts of the *Solids* Moisture relaxes most powerfully, especially when joined with heat. — *Dr. B. Robinson* found the relaxing power of cold water to be 35. — I think the relaxing power of warm water may be fixed at 80 — But does moisture penetrate further than the cuticle? — I much doubt whether warm water, insinuates

itself beyond it — It is absorbed, & circu=lated thro' the Lymphatics & may thus act on the whole Body, like excess of humidity introduced by the Mouth — hence we see the Absurdity of those medical Authors, who talk so much of the relaxing powers of moisture. — It never can en=ter the Solids immediately, & it relaxes only in a secondary way, by being poured into them from the mass of circulating fluids. — 3d. *Flaccidity* The remote causes of this Disease, are, (a) those cau=ses of *Laxity*, which introduce moisture into the fibres (b) too *long* rest in an extended state (c) too much *Vapour*, *Oil* or *Water*, introduced into the *cellular membrane* more especially the last. 4th *Rigidity* depends (a) upon the State of the original Stamina (b) upon abundant nou=rishment, in quantity, quality & application. (c) upon constringing & condensing powers,— the most powerful of these is Cold, especially when it is ~~[illegible]~~ excessive — hence we see how much it limits the growth of Men & Animals in very cold Climates — but *rigidity*, is not al=ways proportioned to Cold, for the retained perspiration, by its moisture, counteracts the constringing powers of Cold — *excessive heat*, by dissipating moisture, induces

20) rigidity — Astringent Medicines are said to bring on rigidity — but Dr. Robinson found, that the Solutn. of Vitriol & Alum rather relaxed than contracted the fibres he used — In the human Body they constringe only by acting on the Solida Viva, or Nervous System (d) upon too much rest in a contracted State (e) upon every degree of tension within the point of breaking (f) in the organized parts of the Body it depends upon compression, especially in the cellular membrane — it is owing to this, that our Solids are acquiring strength in the progress of Life (g) rest in a contracted posture — I speak here of rigidity induced by the cellular Substance. ~~in a contracted posture~~ (h) Rigidity will be brought on, where the Solid parts are deprived of intervening ~~Substance~~ fluids — hence the accretion of the Lungs to the Pleura, & of the Guts to one another — the exudation of coagulable Lymph from the connecting medium. (i) Rigidity, is in the last place brought on by such an extension as gives occasion to a new growth — to all this we may add, rigidity is induced, where all kinds of softness is destroyed, as in the case of Ossification — I shall now proceed to take notice of all the naturally hard parts.

They are subject to three kinds of Diseases — 1st Where Cohesion is destroyed, & a tender fragility is induced — does this depend on the Bones being heterogeneous Maſses, & upon one of the parts being wasted away? I think not — It rather ſeems to depend upon ~~corroding~~ powers applied to them, which corrodes them — What is the nature of this corroding matter? We cannot tell — we can only say, there appears to be a different ſpecies of it, which we may infer from the Venereal ſcorbutic, & ſcrophulous Caries differing from each other. 2d Where flexibility is ſo destroyed in the ~~Bo~~ Bones, as that they break easily — it is hard to ſay when this occurs, it is a Disease incident to old People, which is owing to the Quantity of bony ~~ma~~ Matter increasing by age, from a diminution of Water & Oil, which are neceſsary to give the Bones a due flexibility. — Dr Gaubius takes notice of a frangibility in the Bones, which takes place in winter, which he infers from fractures happening in that ſeason — but this cannot be true, — no cold can reach the Bones without destroying Life — the generating

22) powers of heat in the System, overcome the most intense external Cold — the fractures which occur in winter, may be imputed to the Muscles acting with greater force, than in Summer — accidents, such as falls, happen oftner in winter than Summer, from the ground on which we walk, being more ſlippery. 3d. The Bones are liable to diseases, where they loose entirely their ſolid consistence — in all these caſes the ſize of the Bones is diminished; — it may depend either on acrimony applied to them — (which I think rather improbable) or on mild diſsolving powers which ſoften them, ſo as to make them more easily absorbed into the System — this I think the most probable opinion. —

Of the Nervous System

A knowledge of the functions of the Nerves, is of the utmost importance, not only in the *Physiology*, but in the *Pathology*, as you will ſee more fully hereafter — all our motions, both *vital* & *animal* depend upon them — therefore I hope you will excuse me if I dwell a little upon them, & endeavour to illustrate ſome of their functions — To the *nervous system* belong the *Brain*, cerebellum & *medulla oblonga*

& *spinalis*, — it comprehends likewise the Nerves which are distributed to every sensible part of the Body — the extremities of the Nerves are all connected to two sets of organs. viz, those of *sense* & *motion* under the head of *sense*, I do not mean to treat of all the senses, & the manner in which sensation is communicated to the Brain by them, — nor under head of *motion* do I propose to treat of the force of the *Muscles* &c, — these are equally foreign to our subject — The whole *phænomena* of the *nervous system* may be reduced to 1st. *Impression* 2d. *Thought*, & 3d. *Contraction*. Do all these *phænomena* depend upon motion? I am far from asserting it. — The 2d. is not the property of motion but depends upon *Spirit*, *Soul*, or some *immaterial* *Principle* — but I affirm it can never exist without *motion*, that is, *impression* communicated by the organs of *sense* or *motion* — — according to the maxims of the Schools, *Nil est in intellectu, quod non prius in sensu*. —

— of *Impression* — the term here used is confined only to the actions of those Bodies, which are made upon the nervous system — it comprehends 1st — All we can ~~conf~~ discover in external Bodies, that are relative to ours. 2d. it comprehends the motion which is propagated from the extremities of the Nerves to the origin — I here

24) make no distinction between the organs of *Sense* & *Motion*; as impression acts equally upon both — *Impressions* are divided into two kinds_ 1st *Corporeal*, 2d *Mental* (the words mental impressions are improper,) as the operations of the Mind we here speak of, are no ways connected with impressions) the 1st are those which ~~matter~~ are made by matter on the Body — the 2d are those where thought is produced without any manifest motion — all our Sensations are either *direct* or *reflex* — the direct are such as *Sound*, *colour* &c excite in our minds — the reflex are such as are attended with pleasure or pain, & are more purely mental —— I shall here speak only of those impressions that are corporeal, as these can be more distinctly mark'd — I shall not confine this ~~last~~ kind of impression to the external surface of the Body, but all those things which operate within, especially such as are extraneous, such as *Worms*, *Calculi*, &c I shall extend these corporeal impressions to such as are excited by the Blood, — for we shall find that *Dreams*, & *Delirium* depend upon different states of the Brain — You see these corporeal impressions naturally divide themselves into, 1st *External*, & 2d *Internal*. — there are certain sensations excited in the mind for want of impressions.

ſuch as disagreeable Sensations, which ariſe from *darkneſs*, or *ſilence* — these are not to be called impreſsions, as they ariſe from the State of the Organs — impreſsions will depend upon the different ſtates of our Nerves — thus heat & cold produce ſensations according to the degree of heat or cold in our Bodies — there are ſensations excited on the mind, which do not ariſe from the action of Bodies externally on the Nerves. — This is a diſtinction of importance & ſhould be often attended to. — I ſhall now ſpeak of the Species of external impreſsions — there are five kinds, according to the diſtinctions of moſt *Philosophers*, ~~in~~ *Smell* *Taste*, *Sight* & *Hearing* are all alike in the ſensations excited in them — all the other ſenſations are referred to *Touch*, but I think improperly; for the ſense is too extensive, & too much divided to be reduced to one name, both internally & externally — thus the *Glottis* is affected with every thing that comes in contact with it, except *air* — The Stomach is effected with a ſtimulus, that produces no action on the Eyes, & *vice versa* — does not this furnish ſome ſuspicion of a ſpecific ſtimuli? — all ſensations are communicated by a ſubtle Æther, wh.

26) *Sir Isaac Newton* first hinted at — this fluid is not an inelastic substance, as *Doctr. Boerhaave* has supposed, for such a fluid ~~can~~ could never be fit for the velocity & accuracy we observe in sensations (this supposes too, that the Nerves must be always stretched, in order to suffer this inelastic fluid to pass & repass — now this we know is not the case) — that sensation cannot be communicated by the Nerves as tense elastic Chords, is a supposition too absurd to be insisted on) *Vision* depends upon oscillatory motions, excited by the Rays of Light — *Hearing* depends likewise on certain oscillations excited on the auditory Nerves by the tremulous motion in the Air, which arise first from a tremulous oscillatory motion excited in the sounding Body. *Smell* may be accounted for in the same manner, from elastic Vapours floating in the Air, which produce oscillatory Motions in the Nose, (the variety in smells depends upon the mixture formed from the floating Body, & the vapour in the nose) thus *Taste* & *Touch* might be illustrated in the same manner — I do not ~~presume~~ pretend to say, what the nature of this nervous fluid is — *Dr. Haller* denies its being of an elastic nature. — I do not

aſsert that it is, nor is ſuch a ſupposition

neceſsary to account for the Phænomena of impreſsions — it may be a fluid ſomewhat analogous to it — but from whence is this ~~fl~~ fluid derived, & how is it conſerved in the Nerves? This is a difficult, but not a deſperate Question — 1st Sir Isaac Newton has ſupposed ~~oth~~ that all Bodies, however ſolid, are enveloped with a fluid which likewiſe pervades them, and on this he ſuppoſes, attraction & repulsion depend~~s~~ — 2d All the Phænomena of elaſticity depend upon a ſubtle fluid, — all fluid Bodies of every Nature are non-elaſticks — 3d the ſame ſubtle æthereal fluid gives the whole Phænomena of Magnetiſm, in Iron — now may not the medullary fibres from their original Conformation, have a ſubtle æthereal fluid adhering to them like the magnet? We are acquainted only with the vibrations of Air, — but as the Æther according to Newton's opinion is millions of times finer, ſo he ſuppoſes that its vibrations may be carried on with millions of times ~~for~~ greater velocity — Plants have been found to be poſseſsed of Irritability — this can only be by ~~m~~ means of a ſubtle æthereal fluid — from all this we may preſume ſuch a fluid is in the Nerves, — we don't pretend to ſay it is analogous to any of the fluids we have mentioned. — it is different from them in ſome things as Dr. Gãbius ſuppoſes — but from whence comes this fluid in our Nerves? Here let us have recourse to electricity — we find ſome Bodies have a power of accumulating of it, others again propogate, as ſoon as it is thrown into them — thus we ſuppoſe the Nerves to attract it from all the ſurrounding Bodies — Dr. Haller imagines that this fluid is derived from our ~~fluid~~ food but we ſhall prove hereafter, that it is not ſubject to exhaustion, or repletion, — for the nervous fluid is neither present in our Aliment or nourishment, nor is it ever connected with them, till they are converted into medullary Matter — if it is in our Aliment, its properties cannot be much changed before it is accreted into the medullary fibres — thus we find melted Sulphur has no attraction ~~for~~ to the elastic fluids — but when hardened into a ſolid Maſs, it becomes powerfully elastic — for I am of opinion with M. Bourdeaux, that the medullary fibres are of an immutable, & unchangeable Nature — but how is it, that this Athereal fluid is confined? to this I answer, that all bodies have a subtle Æther adhering to their surface, which has no disposition to unite with the surrounding Air — this fluid is elastic & disposed to expand quaque versa & yet we find it may be propogated along a metallic Chord for many miles, without flying off — perhaps the reason why it don't fly off, is, because it is surrounded with elastic Bodies, such as Air, now may not the enveloping Membranes of the Nerves, be Bodies unfit to propogate the nervous fluid — and may not this be the reason why it is confined? — for we find that the greater or lesser Pressure of these ~~Bodies~~ inclosing Membranes very much influence it's motions — I offer all those things as conjectures, but hope hereafter to prove them more fully — another Question here occurs, & that is, are our Nerves hollow tubes? To this I answer, it is not necessary to suppose them such, for the Æther is so subtle, that it may be propogated as well without hollow tubes, — we before ~~hinted in what manner~~ hinted in what manner Ligatures acted in stopping its motion. — We come now to the 2d division we made, viz. Thought. — I shall consider it as

30) much as possible seperate from its Cause *viz. impression*, & under it I shall ~~consider it as~~ ~~much as pos~~ include all the mental operations from *Volition*, to all the intermediate operations between it & impression — You see how very extensive the Subject is, it is a matter of the ~~gre~~ ut~~test~~most consequence & of great use in *Physick* —

I shall begin 1st with Sensation, which is the foundation of all the other mental operations — it is a simple Idea & cannot be defined — when objects excite Ideas in our mind we call it Sensation — it arises in consequence of motion excited in the *Sensorium commune*; it is therefore a function of the origin of the Nerves —

Do impressions excite contraction without the intervention of Sensation? yes I think they may — for 1st When a Muscle is cut out of the Body, & an impression is made on it with a needle, we find a contraction excited on it — here ~~no~~ no kind of Sensation intervenes, for the communication is cut off with the *Sensorium commune*, & the Animal has no consciousness of it and consciousness is always necessary to Sensation — but 2d We have instances of it in the living Body — thus the impressions on the Guts by purges excite no kind of Senſation in the *Sensorium Commune*, untill the matter purged off arrives at the *Rectum* — ſome here tell us that a repetition of this impreſsion takes of Senſation — in many Cases this may happen, but in the instance we have adduced, it has no foundation; for it takes place in the firſt purge we give — I would ask here, who ever felt a ſensation from the operation of *Diuretics*? or even impreſsion? & yet we ſee an evident contraction take place, which cannot be ~~accounted for~~ resolved into habit — *Cantharides*, it is true, excite Senſation, but they operate on ye neck of ye Bladder and not on ye Kidnies — another Question here occurs — we ſee yt contractions are excited in places no ways connected ~~wt~~ by nerves & Muscles wt ye place where ye impreſsions are made — now are not there impreſsions accompanied wt Senſation or thought? No, they are not, for ye contraction is here excited by a communication thro' the *Sensorium Commune* — I have ſeen a stone in ye Kidnies excite ſickneſs & vomiting, & yet ye Patients never felt the least uneaſineſs in ye Kidnies — many other Examples of ye like kind might be adduced in those Cases, which are called *Sympathies*

32) Sensation is connected wt. impression only for the final ~~p~~purposes of alarming us by pain, or alluring us by Pleasure — I shall now go on to take some notice of those impressions wh. excite Sensation — our Sensations are different 1st According to ye nature of impression as in ye Sense of hard, soft &c. they are different 2d According to the nature of the organ they are made on, — this may depend on (a) ye extremities of the Nerves being disordered, or (b) upon ye state of ye organ in wh. yy terminate — thus we may conceive the auditory nerve would recieve the Light, if placed in the Retina & Vice Versa. 3d. Impressions are different according to the Nature of the Sensation arising, — there is connection between impression & Sensation. — there is nothing in Colour that gives us the least Idea of its different refrangibility of the Rays of light. — See Dr. Haller's primæ lineæ § 556. this observation is of the utmost consequence, as we here distinguish Body & Mind from each other, and it is the strongest Argument in favour of the immateriality of the Soul — all our Sensations you see, depend upon

certain arbitrary Institutions of our Creator. (33

— I see no reason, why ye refrangibility of the rays of Light, which gives us the Idea of a red colour, should not have given us ye Idea of blue — Sic Deo visum est — the Laws of sensation, are 1st All our sensations depend on impressions, but yt are remarkably connected with with ye degrees of impulse, insomuch as sometimes to change the sensations — thus Heat & Cold depend on the same impulse, by the sensibility of the part they are made on — 2d Not only force, but duration is necessary in impressions, in order to excite sensation — all transitory impressions are indistinctly percieved — when an impression remains for some time, it excites the sensation which we call attention — 3d Law is, that the mind recieves but one sensation, at one & the same time — when the Mind is deeply engaged in one sensation, any future impressions made on the Body excite no sensation — The transition of the Mind from one sensation to another, is so sudden that we are apt to deceive ourselves — but I affirm, that the Mind can have but one sensation at once. — 4th Several impressions may operate at once, when they can unite so as to produce one simple Sensation — all the ~~sensa~~-tions impressions must be of one Species, thus the sensation of *green* in our mind is compounded of *yellow* & *blue* — the green is as truly a simple sensation, as the yellow or blue — the same thing takes place in sound — the combination of agreeable sounds forms Harmony, the combination of disagreeable, forms discord — I think this Law will hold good, with regard to the sensations of touch, smell & taste, especially in those of one kind — it is necessary in all cases of impressions of this Nature — 1st that they be *synchronous* — that the impressions be very minute, & duly mix'd — all sensations should continue for some time after yͤ impression is made — now if an impression is made immediately afterwards, the ~~s~~impressions are ever compounded & a single sensation excited — thus if a Boy paints ~~a Top~~ his Top a variety of Colours & whip it, all the impressions on yͤ Top will unite & ~~form~~ produce but one sensation in yͤ Mind. This finishes our account of Sensation. ——

— I go on to observe that they may be renewed by yͤ power of the Soul called *Memory*. this is of two kinds, 1st when the sensations are excited by a renewal of yͤ impressions — this is called *reminiscence* (without yͤ we never should become acquainted with Nature, as every new impression would multiply our Ideas) ye 2d. is when ye Sensation is recalled without any impression, wh. form~~ally~~erly excited ym. — this sort of Memory is of two Species, — 1st. when the Idea is less vivid & distinct than it was in the original impression. 2d. when these Ideas are as strong & distinct, as the original Ideas themselves were — this I distinguish by the name of *Imagination*, which renews Ideas so strongly as to make us imagine the impression to be present, which first excited them. (vide Haller 2559) Let us enquire into the Causes of these Sensations — why does *reminiscence* bring to our Minds Ideas formerly excited there? An answer to this would lead us into very subtle discussions — I shall only enter into the circumstances that attend it. — In every impression we have a complex Idea, insomuch, that in all Nature we never find two things alike; hence the Mind always enquires how far the impression resembles in all its qualities, ye impression it had before — what is the cause of *Memory*, & *imagination*? — It depends either on an Association of Ideas, with a present external impression, or upon internal impressions made upon the *sensorium commune*

36) This aſsociation of Ideas, is called *Judgement*
& depends upon certain relations of impreſsion,
in *position*, *place*, & *time*, — ſo that from one
impreſsion, many former Ideas may be re-
newed, that are connected in either the above
ways — this is the ordinary Cause & exerciſe
of Memory — but there is another Cause depen-
ding on impreſsions made on the *Sensorium*
commune, as in *Dreams* & *Deliria*. — Dreams
indeed often arise from external impreſsions —
thus *ſound*, or an *overload* of *Food* often bring
on Dreams, ſo that they appear to be connected
with external impreſsions — Deliria depend
on the increased impetus of the Blood at the ba-
sis of the Brain — in all Dreams & Deliria, ima-
gination is excited rather than *Memory* — I ſhall
hereafter consider them as morbid Causes — I ſhall
now take notice of some Laws which take place
in memory — 1st That no Idea can be recalled
to the mind that was not excited by ſome im-
preſsions from ſome ſource of ſensation — 2d All
ye Ideas acquired by impreſsion cannot be re-
newed by memory — none but theſe which are
acquired by hearing & ſeeing. I can reccollect
ſounds & prospects, but cannot recall ye Ideas
of ſmell taste or touch — happy for us, we
cannot renew the Sensation of Pain. —

The Ideas ariſing from ſmell or taste, can only be renewed by certain signs, such as words or ſounds, which have formerly been aſsociated with them; we ~~can~~ only remember what theſe Senſations were, & even ſometimes feel ye effect of ym, as in thinking of *Ipecacuanha*, but in these cases we don't remember the taste of *Ipecac.* — It is by means of memory, we diſtinguiſh between *madneſs* & *ſound ſenſe*, *dreaming* & *waking* — for the waking a Man in his ſenses recalls his Ideas in the train in which yt have been aſsociated, which I call *Coherence* in thinking — thus when I am ſeated in my own Chamber, when I recollect my having been giving a Lecture, & of the Gentlemen that ſurrounded me, with your *dreſs*, *viſage*, *employment* &c — Now in dreams, ſhould this ſubject be brought to my Mind, my Ideas would be confuſed: I ſhould imagine this Chamber altered, the Gentlemen who ſurround me, changed in their dreſs, or perhaps employed in a different manner than I now ſee you — the different states of Memory depend upon the State of the *Senſor. commun.* Memory is ſeated in the Brain — this is evident from Children, who have no memory, till they are five years old, or from old Perſons

38) who forget all old Ideas; but recollect thoſe which existed in the early Part of Life. — We ſee too many Instances of a loſs of Memory in ye middle of Life from morbid affections of the Brain 2d. Memory is different according to the force with which the first impreſsions were made, as we obſerved when ſpeaking of attention — 3d. Memory is different according to the novelty or ſurpriſe of the ~~first~~ Idea first recieved — 4th. Memory differs as Ideas are attended, more or leſs with reflex ſensations, that is, from being more or leſs accompanied with pleaſure or pain, or being more or leſs interesting — 5th. Ideas are retained longer or ſhorter according to the relation, more eſpecially of time — we forget thoſe relations ſooneſt, which depend upon certain marks or ſigns — 6th. Memory will be more or leſs ſtrong, according to the number of times Ideas have been excited on ye Mind. 7th. Ideas will be recalled according to the perception of relation which they bear to us — Memories are of two kinds — 1st. ſuch are tenacious of signs only; ſuch Names, Languages &c 2d. ſuch as are tenacious of relations — this constitutes what is called Judgement — a Man who poſseſses this, must alſo poſseſs the former in ſome degree, — but a Man who has the former to a great degree, generally wants the last, as his Mind is occupied

only with external relations, or mere ſigns.

— We come now to ſpeak of reflex ſensations. — 1st All direct ſensations are attended, either with pleaſure or pain — this ſome have doubted, & have ſaid there are *adiaphorous ſensations*, but if there are any, they are very few — the terms here used, *viz.* pleasure & pain are liable to ambiguity, in being confounded with other Sensations that are painful or pleasing, only in a leſser degree, or they may be perhaps of another kind — thus *pain* ſhould be applied only to the Sensations arising from the cutting of a Knife, or from any injury done to the Body — *Uneasy Sensations*, are ſuch as arise from *Nausea* &c

Disagreeable Sensations, are ſuch as arise from viewing an ugly picture, or any thing of yt kind

The *pleasing Sensations*, may be divided into *agreeable*, *delightful*, & *pleasant*, as arising from viewing a beautiful prospect, from alacrity in venery — every reflex ſensation excites to Volition, ſo that they ſerve as a Chain to connect Sensation & volition — all reflex Sensations are attended with pleaſure, or pain & therefore excite to action. — But before we proceed, we ſhall distinguish between *Instinct* & *Reason* — every act of the Will, arises from simple distinct Sensation, or from syd.

40) Perception of relation, — when it ariſes from ſimple distinct Senſation, it is called Instinct, but when it ariſes from the perception of relations it is called Reason — I ſhall now take Notice of the Circumſtances which attend Volition — but ſhall obſerve firſt there can be no Volition without ſenſation — 2d. there may be certain Motions in the Body without our being conſcious of them, as in expreſsing our paſsions by the Muscles of ye face. 3d. there are Motions attended with Volition, which are called propensity, which determine us to get rid of any uneaſineſs without having any end in view for that purpoſe — ſuch as in the action of Yawning, ſneezing, coughing &c — ſome will tell you we have an end in view in these Actions, ~~which depend on ſtimuli~~, ~~which cannot be performed without them~~ but if we have, it is only in conſequence of their being repeated. — 4th. there are certain actions which depend on ſtimuli, which cannot be performed without them, they are connected with the former, & have no end in View, as in the caſe of our appetite, thus we cannot perform the act of deglutition, altho' a voluntary Motion, without ſome degree of hunger — (See a remarkable Caſe of this kind in Hildanus)

5th There are motions, which arise, not from ſimple ſensation, but are deduced from Reaſon & are excited as means to an end; the former motions are all *involuntary*, or *Instinctive*, the last *rational & Voluntary* —

We come now to ſpeak of *Contraction*, — it takes place in part of our Syſtem only, from which it has been inferred, that it depends on a particular organization of these parts. — We ſhall firſt enquire whether this Contraction depends on an elasticity that is peculiar to them in common with other matter, and 2dly Whether this contractability is peculiar to muscular fibres (independent of their connection wh. the Brain) from their conformation — as Dr Haller has ſuppoſed. — As to the 1st Queſtion, we may obſerve, that the contraction of muſcular fibres, is much greater than in other Kinds of elastic Matter 2d Elastic Bodies are contracted by bending Bodies alone, but muſcular fibres are contracted by Subſtances which have no tendency to bend them, — ſuch as ſtimuli — muscles on this account are ſaid to be poſseſsed of *Irritability* — but I think *Exciteability* would be a much better word, as the term Irritability ſuppoſes ſense. We ſhall hereafter call it *Irritability* after *Dr Whytt*

42) 3d All elastic Bodies when stretched, return again to their original length, nor can any thing make them contract, when they are in this ſtate of tension — But all muscular fibres we know are in a ſtate of tension at times, & yet are capable when ſtretched, of contraction. 4th Muscular contraction is peculiar to living Systems only, hence it is justly called by Dr Gaubius, *Vis Vitalis*, as opposed to *Vis Mortua*, which relates to contraction in ſimple relaxed Bodies — we grant a muscular Contraction may ſometimes take place in matter which has no ſense, but then this matter must have been once connected with animal Life — Let us now enquire to what part of ye System this contraction belongs — we know it belongs to all Muscles, — but how ſhall we tell which part of the Muscle, & which not? Some Physiologists confine it to all parts poſseſsed of *Irritability*, which I know nothing to contradict. — On what organization, does the contraction of muscular fibres depend? — this is a most difficult Question — But before we diſcuſs this, we ſhall enquire whether this contraction is peculiar to muscular fibres themselves, or whether it depends upon the Brain — All Physiologists suppose ſome

acceſsory power, such as an influx of Blood, or nervous Æther, to be neceſsary to contraction, except *Dr. Haller*, & a few others — we grant yt a muscle cut out of the Body, with a Nerve fixed to it, will contract — but this continues but a very ſhort time — on what does it depend? on the mechanism of ye Muscle, or on a ſentient principle? the last is improbable — we must then admit *Dr. Haller's* *Vis Insita*, & ſay there may be contraction without any influx or acceſsory power — we find that contraction continues even in the living, when the Nerves are tied which belong to the contrary Muscles — it makes no difference when the Muscle is tied, ye Irritability is the ſame, whether near the Muscle or the Brain — thus you ſee I agree with *Dr. Haller*, in his notions of ye *Vis Insita* — but I differ in ſuppoſing it depends on the ſame elastic fluid which excites contraction in other parts of ye Body — this I infer from ye contraction being the ſame in a Muscle cut out of the Body, whether we touch the muscle or nerve which enters into it — this is ſufficiently proved in *Dr. Smith's Thesis*. — *Pauca hic desunt* —

——— Contraction dont depend upon any organization of the Muscles, but is derived from the *Sensor. commun.* & flow from it in all the acts of *Volition* & *Sensation*. — This

44) is proved 1st from Ligatures made on ye Nerves preventing contraction, of the Muscles they are distributed to. — & 2d. from the Soul's having its ſeat there — this is easily proved from the faculties of the Soul being impaired from an injury done to ye Brain only, either directly or indirectly — 3d. from the renewal of Ideas, or ye Exerciſe of Memory, which remains after every other part of the Body is impaired, except the Brain — 4th. If a ligature is made near ye Brain & an impreſsion made on a remote part of ye Body, no ſenſation is excited — 5th. we often ſee ſenſations excited in Muscles, when ye Impreſsion is made on Muscles in a different Part of the Body — this don't depend on any connection of Nerves, but is occasioned by motion communicated from the Brain, thro' which all Sympathies are made — 6th. We often find perſons complain of ſenſations, when the Limb in which they feel it, has long been cut off — what can this depend on? ſince it ſhews that contraction & ſenſation are derived from the Brain — but to all these Arguments, ſome object & ſay there are Animals who live & exerciſe ſenſation & contraction, who have no brains, or very morbid ones — to this I would answer — that this Argument is founded on false facts — many experiments

have ſhewn us Brains in those Animals, in which Dr. Haller denies it's presence — but independent of this, we must not confine our Notions of the Brain too much — it may be extended all thro' the *medulla ſpinalis*, and different parts of it may be of more or leſs consequence in different animals. — *Sensations & Volition*, are not always confined to the Brain, but the *understanding* also. — this is evident 1st from the Brain's being the origin of all the Nerves — 2d from four of the Senses being ſeated only in the head — As to Cases of the intellectual faculties being left impaired by Lesion of the Brain, I think they are liable to great fallacy — an injury of the cortical ſubstance of the Brain, we know, does not hurt the understanding; nor even ſlight wounds of one ſide of ye Brain. Besides I am apt to doubt the truth of many of the facts adduced. — Let us now enquire into ye mechanism, on which contraction depends — a most difficult undertaking! and abounding with conjectures, which ſhews it's abstruſeneſs — I would reject all ſuch of these conjectures, which ſuppose contractions to depend on the motion of ye Blood, as Ligatures on Arteries ſufficiently demonstrate — See Dr. Haller §. 46. —

46) We find muscular motion continues even after the heart is cut out of a Frog — this confirms what I am advancing beyond a doubt — if then, any accessory power, is necessary to account for contraction, it must come from Nerves — even those who suppose the *Soul* to be seated in ye Muscles must allow this — *Physiologists* have imagined that the conflux of the Æther of ye Nerves, was insufficient for Contraction, & have called in a peculiar organization of the Muscles to account for it — but this will not account for ye degree or Velocity of muscular Motion — I think it rather depends on the Æther of our Nerves being propelled into the Muscles, & overcomming ye resistance of the Æther, which allways covers, not only our Muscles but all other elastic bodies. — This doctrine was first delivered by *Sir Isaac Newton*, who explains elasticity by it, & gives no exact calculations of ye *rarity*, & *elasticity* of these several æthers — ye spiral figure of the Nerve, which *Dr Smith* has lately demonstrated, seems to favour ye supposition — But how are Muscles excited to contraction after taken out of the Body? — to this we answer — that the Æther of our Nerves, is in a very elastic, mobile State, and when put in motion by a Stimulus applied to the muscular fibres, reacts again & thus excites motion — besides the Æther of the

fibres may have ſuch oscillations by ſtimuli as 47
to produce this motion — here we must ſay a
few things on ſtimuli — All ſtimuli are ~~the~~ e
chemical, or mechanical — the actions of the first
depend on ye difference of oſcillations in ye Objects
which excite taste or action, for all Bodies have
an Æther peculiar to themselves, which acts as
oscillations according to the different nature of its
Mixts. — but how do mechanical ſtimuli act
in these cases where there is no impulse? why
as repellents only? ſuch stimuli have ſharp
points, & therefore act by removing the nervous
fibrils from one another, — or by the Æther they
contain going out from them into our nerves
at a point, & thus give us pain — but how do
ſedatives act? this is a difficult Question — I formerly
ſupposed all sedatives mixed with the nervous fluid,
& thus destroyed its mobility — we have ſeveral
chymical Analogies wch confirm this — but I see
many objections to it, & therefore am willing to
desert it — I think a better explanation may be
given — we just now presumed that sharp poin
ted ſtimuli added to Æther of our nerves — now ~~ma~~
may we not presume likewiſe certain ~~ſubstan~~
~~su~~ ſubstances, ſuch as ſedative Medici

power of attracting this Æther? We have a strong analogy to confirm this in ye communication of ye electric matter to non electrics — Let us enquire into the different states of muscular fibres — 1st On what does Spasm depend? why on two causes 1st — On too great accession of ye Vis Nervia (but why it should remain I cannot say) — 2d. On ye stretching power being taken off from Muscles lying too long in one position — I shall hereafter speak more fully on this subject —— On what does convulsion depend? — this has been confounded with Spasm by Dr. Gaubius & others — but I think them essentially different, & depend upon different causes — if Muscles act with unusual force & velocity, we may say they are convulsed — if they remain long in a contracted situation, we say they are affected with Spasm — a want of tension is the great predisposition to convulsion — this tension is called force or tonic power, and depends on an equal distribution of the nervous fluid — If this by any accident does not press upon any part of the Body an Atonia is induced — this Atonia differs from Palsey in not depending upon interruption, but from a want of impression of ye Vis Nervia — before we discuss the Laws of the Nervous System we shall give a short

Recapitulation

Here I would premise what I ought to have done before, that is, that all Phenomena of Nature, are to be explained mechanically under it's different modifications of pressure & impulse — we have retarded the progress of Philosophy, by restricting our notions of Mechanism — the *Corpuscularians* have endeavoured to account for every thing from the action of hard Bodies upon each other; but later enquiries, ~~but later enqui~~ries have taught us to call in ye action of subtle elastic matter, which resolves many *Phenomena* of Nature hitherto unexplained — as the *theory* of *electricity* — *Magnetism*, — *Light*, — *Gravitation*, &c Visionary, & fantastical Philosophers, have ever been fond of calling in immaterial Agents which has tended much to check a free enquiry into the operations of Nature —

Nec Deus intersit nisi — &c
Horace

But to come more nearly to our subject —

1st By the nervous System I understand the Brain, Medulla oblongata, Spinalis, & the Nerves terminating in all parts of the Body, together with all muscular fibres, which are endowed with the same sensibility, & possess the same

50) Æther, which is peculiar to the Nerves, from this I think we may infer that the Muscles have the ſame Structure as ye Nerves — 2. We have ſaid every part of ye Nervous System was connected, which we infer from Motions being communicated ſo uniformly all over ye Body by impreſsions made in ye part only — 3d. All actions are carried on by the motions excited in the Æther, which adheres to our nervous Substance — this I inferred from all impreſsions depending on oscillations by the Body impreſsing — now these oscillations can be brought on by the motion of ſome ſubtle fluid in our Nerves, for oscillations cannot always be present in our Nerves, which are always in an excited State, ſomewhat analogous to the State of Electrics, when the electric matter is accumulated in them — to this Analogy we must add, that it is in an excited, but electric State — this State of exciteability in our Nerves is kept up by heat, as we ſhall ſhew more fully hereafter. — 4th. The nervous System is distinguished into four parts, which have each of them different functions — ye 1st. difference consists in its being arranged in distinct fibres — ſometimes, however

arranged & mixed with each other — this therefore includes the medullary part of the nervous System — 2d. Under this head, I would include the Nerves, which consist of the ſame Matter as the medullary parts; & are diſposed in fibres — 3d. Includes the Nerves denudated of a Membrane, which we have in the ſecond ſtate mentioned — In this ſituation they are expoſed to be acted upon by the impulse of external Bodies — the Nerves here are ſaid to be ye *organs* of Sense — 4th. Includes that part of the nervous fibres which are denudated of the membrane wht. is common to them, & ſo attached, as to be capable of *extension*, & *contraction* — these we may call the moving extremities of the Nerves in opposition to the former, wht. are ſentient extremities —

Let us now enquire into their different functions — to the 1st. *viz*. the medullary part, belongs *Thought*, or the exerciſe of an immaterial principle, which is connected with the action, or motion of the medullary Substance only — the *Soul* acts in ye. Brain only, & no where else — this was proved to you fully before — the functions of the ſecond part of the nervous System, *viz*, the *Nerves*, is only to form a communication between the *Sensorium* & ye extremities of ye Nerves, mutually — the function of the 3d part, *viz*, ye *organs* of *Sense*, is to communicate Sensation to ye Brain by the action of external Bodies upon them — we may add also to this certain impreſsions made internally by the action of ſuch parts of ye Body as are exterior to the Nerves, as ye Blood, or as an unusual action of the Blood Veſsels, or by extraneous Bodies, whether introduced, or generated there. I mentioned formerly, that impreſsions were either *chymical* or *mechanical* — the chymical, you may remember, we reduced to the mechanical, & called them unknown Mechanics. — If we admit of expreſsions altering ye ſtate of mixture, or aggregation in ye fluid of our Nerves, we may then talk of chymical impreſsions also — the parts of our Body are all of them ſentient ſo that our whole System may be considered as a ſentient System — Some impreſsions act equally on all fibres, ſuch as *compreſsion*,

Heat, & Cold — but there are some sensations which can only be excited by impressions made on particular parts — this is difficult to be explained — it may depend on the greater or lesser denudation, expansion & tension of ye sentient Nerves, wh. occasion their giving different Sensations — further there are Nerves connected with a certain apparatus — ~~which~~ in ye termination, which qualifies them to admit the impulse of certain Bodies only, as the Eye, light — the Ear, sound &c — it is by
that Life is first brot on, & I hope I shall be able to prove yt it is
by impression
impression only ~~that Life~~ is maintained —

ye function of the 4th part of the System, viz of muscular fibres, is to serve, as organs of Sense & Motion, — as Organs of motion, they are 1st denudated of a covering they had in ye nerves — 2d they are from their spiral shape, & their attachment to Ether, capable of extension & contraction in common with ye solids in a state of tension — 4th they are in a state of excited elastics, & thus differ from simple elastics, & abound with an Ether, upon the abstraction, or addition of which,

54) the action of Sedatives & Stimulants depend — Having ~~this~~ finished ye Recapitulation, I shall proceed to speak of the general System. — 1st I shall speak of — Sensibility & Irritability.

All Bodies wch act upon us produce Sensations — this capacity of having sensations excited, is called Sensibility — these Bodies, which excite Motion are said to produce Irritability, & the parts capable of this, are said to be possessed of Irritability — there can be no contraction without Sensation, & it is in many cases exactly proportioned to this sensation — see Dr Gabius §. 190, where he says Irritability is always proportioned to Sensibility — see also §. 174. but this is by no means universally true, altho' it is difficult to point out where they ~~may~~ are to be distinguished — the same causes do generally produce the same effects, but this should be used with some limitations — Causes are not always simple, but often compound, & the effects will always be according to ye nature of the Causes. Contraction, is therefore not always proportioned to Sensation, but may be altered considerably by the different States of ye Nerves, on which ye impreſsions are made — hence then a foundation for distinguishing Sensibility & Irritability — but further — 1st Contraction from Sensation arises from volition, — but we often see contraction without volition — 2° we see Sensation without contraction, as in paralytic Limbs, which depends upon a want of Irritability — 3d there may be contraction & no Sensation from a want of tension in ye Muscles, ye Vis Nervia being given — this is illustrated by taking up a light weight, after having born a heavy one, a trembling & weakneſs in this case will always be felt, in the hand — there may be, I grant Causes which act on the whole System, which act alike on Sensibility & Irritability — when this is ye Case, I call it Mobility — when there is a defect in both, I call it Inertia — But external causes act on the Sentient parts only (we say here, when ye parts are too sentient that there is an exceſs of ſensibility — When ſensations are dull, & not proportioned to impreſsion, we ſay there is a ſtupor. But when external causes act on ye powers of motion, only so as to carry it to exceſs, we call it Irritability, when it is defective we call it Torpor — the case Van Swieten mentions was not owing to an exceſs Sensibility, but Irritability, which I infer from the cure he used to her, wht. was ye restoring the tension to her System, by Bandages — I ſhall now ſpeak of a ſecond Law of our System, viz the Power of Custom & Habit, wht. have been ſo much obſerved in our animal Œconomy — the effects of Custom, are the effects of a continuance of ye System in one State, or of some new Law or action depending entirely on Custom — these effects when induced are called Habit. I ſhall consider these as affecting 1st. Sensibility & 2d. Irritability — 1st. Sensibility, we ſhall remark 1st. that all ſensations are more or leſs acute, as they have been continued for a longer or ſhorter time — a late ingenious French Gentleman found means to distinguish Gems from other Stones by their shining in ye Dark; which he did by confining himself in ye dark for some hours before he viewed them — hence we may learn yt our Sensations are no measure of ye State of things around us — this is exemplified by ye sensations of heat & cold differing according to ye degree of heat or cold in our Bodies — this, in my opinion, furnishes the strongest arguments against the frigorific, as well as the calorific particles — the different degrees of heat & cold, altho' but different degrees of ye same quality, serve further to illustrate to us the arbitrary connection between impression & sensation (both heat & cold, produce ye same direct sensation, but different reflex) 2d. Agreeable & disagreeable Sensations often arise from the same impressions, as in ye case of light — but this will often depend on ye state of our Bodies, so yt. ye impressions may in one sense be said to be relative — but there other impressions which are absolute. —

58) It is of great importance to distinguiſh these two kinds of impreſsion — heat & cold are marked by ye Body according to its own Sensations — thus all heat becomes uneasy beyond 62, & all cold excites uneasy ſenſations that is below 32, absolutely speaking — but ye Sensibility of ye System may be ſo altered as to render these degrees of heat & cold relatively painful — thus a Man, who has long been used to 80, of heat, feels the Sensation of cold, if ye heat ſuddenly falls to 70. — much more then he does, who lives in a Climate, where ye cold falls ſometimes ſuddenly from 60 to 50 — hence we ſee the fallacy of Dr. Wintringham on epidemic Diseases, who supposes yt Hippocrates's doctrine will hold good in Brittain, altho' its Climate is so much different from that of Greece. — 3d. Impreſsions become leſs sensible according to their repitition — thus same impreſsions wh. are at first painful, after a while become pleasant, as in ye case of Tobacco, Spirituous Liquors &c — this admits of great

application in Morals, as well as in Medicine — Brandy becomes necessary, if we have been long used to it, on purpose to keep up a tension in yᵉ Nerves, a want of which is attended with uneasiness The longer we use Brandy, the more we require of it to keep up yᵉ tension — this leads me to speak of yᵉ operation of Medicine — Vomits & purges lose their force by being often repeated — 4th Sensations arising from Compassion are more or less acute as yᵗ have been repeated — thus a Linen Draper is able, from being so long used to handle Cloths, to tell, yᵉ moment he puts his finger on a piece, at once its degree of fineness — yᵉ law belongs rather to experience than Cu: Custom. — 5th Any two Sensations being excited together are ever after connected, hence arises the association of Ideas — this association does not always depend on repetition, but upon yᵉ relation of things also — & on yᵉ last kind of association yᵉ most useful

60) species of Memory — Artificial Memory depends upon ye first kind of aſsociation. — 6th Repitition not only renews two ~~kind~~ Ideas, but a ſucceſsion of ym & establishes an order in them — this is exemplified in a Boys repeating words, he don't understand — 7th Repitition aſsociates impreſsion & actions — this is nothing else but the former Law — ye impreſsions here act as a stimulus, & excite to these actions — thus ye voiding of urine depends upon its stimulating ye Bladder, but we can discharge it at times by renewing ye impreſsion without the Stimulus, as in going to Bed, even in these Cases, where we have made water but an hour before — 8th the renewal of Ideas, is however much limited, — we can only renew Ideas which have been acquired by hearing or ſeeing, & these can only be renewed by certain ſigns, whh have a power of exciting reflex Sensations, & there producing pleasure or pain — thus a person who ſees a Cup from whh he took a Vomit, often feels a Nausea, & sometimes vomits from it. —

I shall go on to mention ye Laws of habit, whh belong to ~~habit~~ action or Irritability. — the 1st That Repitition of action has great influence upon our Muscles — thus a Man, who has long been used to a weight, is not able to leap to any considerable distance ~~with~~ without ~~force~~ Lead in his hands — 2d a repition of actions gives a greater facility in ym — the most difficult actions become easy by repitition — it generally attends those actions which depend on ye Stimulus whh arises from an increased Irritability in ye moving parts — this does not contradict ye Law we mentioned under the head of Sensibility — we often see Sensibility diminished & yet Irritability increased — they do not however observe any regular Laws, & it is hard to tell when yy mutually take place — 3d Actions frequently repeated become more easy, but spontaneous & arises without those sensations, or volitions whh formerly attended ym — respiration was at first a voluntary action, but in consequence of frequent exercise becomes more involuntary, & goes forward in Life — in this case Irritability is increased while Sensibility is diminished — But is there not here an effect without a cause? viz. Irritability or action without sensation, or volition? No, there is always a cause in these cases — that is, a stimulus or impression affecting the Lungs — upon that account we aught to reject ye word *spontaneous* from our *Theories* of ye animal Oeconomy — the Action therefore in Respiration, is ~~certainly~~ entirely mechanical, hence no consciousness ever attends it — I do not suppose ye function was originally mechanical — we know sensation & volition are obliterated by habit, & as this is ye Case we cannot tell what actions were mechanical & what were voluntary; as ye transition generally happens in ye state of Infancy — even ye Heart itself may have been originally under ye command of ye Will, — we certainly exercise a power over it in many cases, as in several of ye passions, particularly in *Anger* — the motions of ye *pupil*, I believe, were originally voluntary — Sensation & Volition being lost by ye frequent stimulus of Sight upon it — 4th. Repetition gives force to muscular contraction — if ye Muscles are ~~too~~ exercised too violently & suddenly it gives lassitude & debility, but if gradually without too much violence, they become strong. You have all heard ye Story of ye Man, who by lifting a Calf every day, was at last able to lift it when it grew a Ox — exercise serves to apply nutrition, — now ye more ye Muscles are exercised, the more nutrition they desire — frequent exercise may likewise give a more excited state, or more density, or ~~muscular contractions~~ elasticity to ye nervous Æther. — Repetition regulates & determines & regulates ye degree of muscular Contractions — ye Rope dancers & Tumblers acquire yr agility in actions by Habit — the duration of contraction is likewise determined by habit — we cannot keep certain Muscles in a contracted State above a certain time — I cannot hold my Breath above $\frac{1}{20}$th of a Minute without feeling pain — but Divers & Trumpeters can retain ye Breath for two minutes, witht. feeling ye least uneasiness; which is entirely owing to habit — lastly ye degree of tension in the Muscles is regulated by Habit — theſe Laws apply to internal, as well as external Actions — Repetitions aſsociates Motions e.g. yᵉ Motions of yᵉ two Eyes — yᵉ Actions of yᵉ hands & feet often become neceſsarily aſsociated, merely in conſequence of habit — 'tis wonderful to ſee how uniformly theſe aſsociations take place in human Life — more than two impreſsions & actions ~~are~~ may be aſsociated together, but they always ſucceed one another in a regular Order — as in yᵉ case reſpecting certain words, committed to memory — this regular ſucceſsion of impreſsions ~~or actions~~ may be interrupted by a ſudden fright, or any thing of yᵉ kind — but he who is able to keep up his train of thinking in ſpite of sudden emergencies, is said to be poſseſsed of *Presence of Mind* — this Law greatly influences periodical motions — thus about 9 o'Clock in yᵉ morning, I think of coming to the College to lecture to you, without hearing yᵉ Clock ſtrike, or yᵉ Bell ring — You have all heard of yᵉ famous Staffordſhire Idiot, recorded by *Dr Wyllis*, who had long been in a habit of repeating after yᵉ Clock yᵉ time of Day; insomuch that

that when the Clock stopped, he continued to
tell ye ~~hours~~ — how ſhall we explain this? —
why our animal Œconomy is neceſsarily sub-
jected to periodical Revolutions, from ye State
of ye Heavenly Bodies & its own particular Nature
— thus, if I am aroused from Sleep a few Morn-
ings at a certain hour, I ſoon acquire a habit
of waking precisely at that hour — our Bodies
are in a constant flux — fluids are perpetually
flying off from ~~& ym~~ hence arise regular times
of ~~reputation~~ repetition, & exhaustion — & of sleeping
& waking — these are called Natural Periods, &
our daily, weekly, or annual — but these cauſes
are not always simple & uniform — we are
subject to many habits, wch observe no exact
Periods, as fasting or eating, wch often have
yr regularity interrupted by exercise, ~~overeating~~
over-eating, & ye like — where ſhall we look
for the causes of these periodical habits? —
why in ye nervous system only — hence we
find all those diseases wch are periodical,
more or leſs nervous — to conclude — that
our System is made of periodical habits,
& hence ye reason why artificial ones are

66) ſo easily induced — This finishes ye consideration of ye Laws of custom and habit — it is a ſubject of great importance in Physic — but more especially in ye preservation of health — hence *Celsus* ſo wisely cautions us against ye power & influence of all habits, which lays us open to many occasional causes of Diseases — I know a Lady who from being confined for a few Weeks to a dark Room, for an inflamed Eye, has not been able to bear the light of ye Sun for ſome Years — I might easily illustrate ye ill consequences of habit over Irritability, as well as Sensibility — *Celsus* goes so far as to recommend exceſses at times, to guard against the effects of habit — but there are ſome habits which we ſhould endeavour to acquire — as those which tend to diminish the Sensibility of ye System to Cold — but the acquisition not only of this, but of all other habits, ſhould be gradual — upon ye acct. would it be poſsible, I would never suffer

Children to taste Animal food, 'till they are 15 or 16 years old, as it acts as a stimulus, & this tends to wear out ye System in a word habits should be avoided by healthy persons; but yy become absolutely necessary in weakly ones — it was only habit(i.e.) by *weight* & *measure* that *Lewis Cornaro* preserved his Life so long —

I shall now go on to mention those causes, circumstances & conditions, wh. influence ye nervous System in sickness & in health — I shall therefore, 1st speak of those causes, circumstances & conditions which influence ye System in general, & 2d. *upon* ye causes, conditions &c before mentioned. —

1st The state of ye whole System, will depend upon *Mobility* & *Inertia* (i.e.) where ye causes affect Sensibility, or Irritability or act upon ye Ether of our Nerves — The mobility of our System, will depend 1st. upon ye mobility of ye *Ether* which may

be affected by a variety of causes, as
(a) by ye ſtate of ye original stamina —
hence we find different Persons who live on
ye same Aliment in quality & quantity,
have different Stamina & from yt have
a different ſtate of mobility in ye nervous
System — ye different temperament and
Sexes may depend on ys cauſe — I said
before yt ye Æther of Bodies, was different,
according to ye state of agitation in ye Bodies — Now our Nerves from ye original
conformation, may be softer yn yy ſhould
be — hence ye *density* of ye *Æther* yy contain
may be leſsened — ye elasticity of ye Æther
may also be diminished or increased, which
will give Inertia or mobility. (b) The
Æther of our Nerves may be affected by
Cold & heat — we ſhall enquire in what
manner yy operate hereafter — it is
certain they act on ye Æther of all other
Bodies — Animal Life we know, depends
upon a certain, uniform degree of heat —
nay we even ſee it excite Life, as in ye
caſe of *Incubation*, till ye generating power of heat in ye Animal is established.

If Life yn. depends upon ye motion of ye Æther, we are sure heat will give more or less mobility to it — Heat yn., I presume, gives mobility, & cold, Inertia — I infer ys from ye analogous operation on ye Air — Heat, we know gives elasticity & ~~gives~~ diminishes density, while Cold gives density, but not elasticity in proportion — Cold I know acts as a Stimulus, but we before hinted, that many Bodies might act as Stimulants & Sedatives — But why not the Body heated in proportion to ye external heat applied? ye heat of ye Body is uniformly at 98; nor is it increased by ye heat of ye Air, that rises up to 120 — Dr Lee found by a number of experiments that ye heat of frogs was absolutely below ye temperature of ~~ye Air~~ Water, or of the Atmosphere — ye resulution of ye Problem is very difficult, nor does ye heat of ye Body fall in proportion to external Cold — ye Generation of heat, we shall say hereafter depends on ye oscillation of our nervous

70) Æther, wh. cannot be affected, ſo as to produce more or leſs heat, by heat, or Cold — an obvious analogy, borrowed from Elasticity, may serve this Hypothesis — Sulphur is an elastic Body, while hard, but no sooner does it become soft, than it looses its heat, & transmits ye. elastic fluid — all heat ~~by increasing~~ above 62°. by increasing elasticity, gives mobility — all cold below 62°. gives density to ye. Æther, & hence induces Inertia — ye. is confirmed by ye. different temperaments of People in warm & cold Climates — ye. mobility of ye. Æther may be affected by certain applications, ſuch as Sedatives & narcotics, wh. act on ye. Sensibility and Irritibility of ye. whole System, from wh. I infer yt. it acts on ye. Æther, & not on ye. ſolid part of our Nerves — I before hinted ye. Sedatives acted by abstracting Æther from our Nerves — but Sedatives are of various kinds — some of them may act more immediately on ye. mobility of ye. Æther, in consequence of mixture, — as Acids, and all corrosive ſubstances, which appear

from Dr. Smith's Thesis — I much doubt whether there any substances whh. excite ye. Æther — 2d. I now come to take notice of ye. different States of ye. Nervous System — they will depend upon ye. different proportion of ye. Nervous Æther, to ye. simple Solids — hence arises ye. different temperaments in different Ages — ye. medullary substance of ye. Nerves, is subject to changes, — this is evident 1st. from ye. difference of solids in ye. System in infancy & old Age — 2d. from ye. Body being extended in length during it's growth — 3d. we know yt. ye. tension of ye. Nerves depends upon ye. Ballance ye. Lace with ye. simple Solids — now ~~y~~ we know ~~that~~ ye. simple Solids are increasing in density & solidity, from whence it follows, that ye. nervous fibres must keep pace with them in their growth from all this it follows, yt. ye. Nerves & ye. Æther are suffering changes, thro' every Stage of Life in Mobility, elasticity, & density — from this we explain ye. reason, why the Memory changes so much — In infancy ye. nervous Æther, has great rarity & but little elasticity, & hence has small oscillations — in manhood their elasticity & density are in their perfect state — in Old age they are diminished, — hence ye memory fails. — Let us now explain in what manner ye mobility of ye System is affected — by this Ballance between ye *Vis Nervia*, & ye simple solids being destroyed it will depend 1st on the weight appended — 2d upon contractibility of the simple Solids — ye weight & contractibility are always on ye increase — from wch we infer the power of ye Vis nervia must increase also — now these do not allways agree in proportion, which must give a difference of Mobility to ye nervous system — at a certain period of Life, they come both to a Ballance — when ye Body ceases to grow, ye *Vis nervia* continues to increase in density & force — but we know there are many causes which induce rigidity in ye solids — insomuch that they overballance ye Vis nervia as in old age — this ballance we have been talking of, may be affected by all ye causes which influence tension — The state of the *Visnervia* may be affected by ye force of distending fluids — the Arteries are always distended with Blood, wch. not only gives a tension to ye. fibres of ye. Arteries, but to muscular fibres in general — now ye. greater or leſser influx ce of ye. Blood will influence ye. ſtate of tension in ye. Nerves — this influx will depend upon ye. force of ye. Heart, which during Infancy & Childhood, is superior to ye. resistance of ye. Solids — but ye. superior force is constantly diminishing, till it comes into an exact Ballance with ye. rest of ye. System, at which time ye. growth of ye. Body ceases. — In old Age ye. force of ye. heart is inferior to ye. resistance of ye. Solids, from whence arises a different ſtate of mobility in ye. *nervous* System. —

II. We ſhall now proceed to ſpeak of ye. conditions of ye. several parts of ye. nervous System — & 1st. we ſhall ſpeak of ye. *Sensorium*, which we ſhall ~~call~~ consider as ye. *Vis Animalis*, from its functions continuing thro' ſleep & waking — these alternate one another very regularly every 24 hours, & are common to ye. whole *Animal* Species — the common explanation of this is, yt. ye. nervous fluid is secreted in ye. Brain which is diſsipated during ye. day by ye. *Vis Animalis* and renewed again every Night — but to this

74) we object, that ye fluid is often expended much faster yn it could be ſecreted — *Dr. Boerhaave* insists much on ye glandular structure of ye Brain & hence concludes ſome fluid must be ſecreted there — this I will not deny — but I hope we shall shew hereafter another uſe for ye glandular Structure ~~of ye~~ & secretion which goes on in ye Brain, & that it cannot poſsibly be designed as ye medium of ſensation — from what we formerly said, ye Æther is too subtile to admit of such a ſecretion, nor do we ever find any receptacles yt appear capable of confining such a subtile matter in ye Brain — but I add, yt ye Phenomena of ye System in general, & eſpecially of sleeping & waking, are by no means reconcileable to alternate exhaustion & repletion of ye Nervous Æther — it's inactivity may depend on many other causes than an exhaustion of it — such as want of heat, too much rigidity in ye Solids &c. ye *Vis Insita* remains ſo long in a Muscle, that we cannot reconcile it with an exhaustion of it — beſides we ſee ye Æther returned to ye Brain to communicate impreſsions & not expended — I grant the *Vis Insita* ſhews a weakneſs by

exercise; but yt. arises from a diminution of its excited ſtate, and not from its being exhausted — which we prove, from being capable of exciting it, when most languid by exercise. — Let us now attend to ye. Phenomena of ſleep — here indeed marks of exhaustion appear; but we find ſtimuli capable of baniſhing a diſpoſition to ſleep — these ſtimuli cannot communicate Æther to our Nerves, as we ſaid before, because we find mechanical impulses, such as ſound, capable of keeping it off — We have a practice of pricking Witches in this Country, to extort confeſsions from ym., by wch. means we have kept them awake ſeveral Weeks — now in these caſes, there can be no repletion — besides if ſleep was unavoidable in conſequence of exhaustion, why is not waking ye. conſequence of repletion? for we find it is not — we are all capable of ſleeping at any time in certain circumstances, of Darkneſs, Silence &c — all ye. other ſecretions when full, excite a ſtimulus to discharge themselves, but we ſee nothing of this kind in ye. nervous Æther; for waking returns only in yt consequence of habit or ſtimuli applied to ye Body — we often ſee instances of People. who can ſleep 18 hours out of 24 — how ſhall we account for ye return of ſleeping & waking at periodical hours? this they do, let ever ſuch great thinking, or exerciſe have preceded — ſurely therefore. no regular exhaustion can take place in these Cases — these periodical habits depend on an Aſsociation of Ideas, & an abscence of stimuli, & not on exhaustion of ye Nervous Æther — but again we ſee some animals ſleep ye whole winter — here ye temperature of ye Air only, can act on ye Æther — it is absurd to ſuppoſe a ſecretion going on in ye Brain, ye whole winter — on what then does ſleep depend? — on an interruption of ye motion either 1st on ye Sensorium, 2d on ye mobility of ye Æther of our Nerves, & 3d want of Impulse. —

I. Let us enquire into ye different states of ye Sensorium, which influence ſleep — here we may include three poſsible causes — 1st the Sensorium may be in ſuch a State, as not to transmit Motions — 2d Supposing ye Motions continuing free in ye Sensorium, whatever checks yᵉ mobility of yᵉ nervous fluid, or 3ᵈ by a want of impulse on yᵉ nerves— Let us consider each of these seperately— as to yᵉ 1st, we often ſee a Loſs of Sense & motion to follow a compreſsion of yᵉ Brain, whereby an interruption of motion was induced— ſome ſuppose a light compreſsion of yᵉ Brain always takes place in natural ſleep — this must be a compreſsion of a particular nature, or else it could not be removed ſo suddenly upon waking — upon yᵉ whole, I am apt to ~~believe~~ to conclude, compreſsion can have no influence in inducing Sleep. —— Sleep may be brought on by congestion, or tumours in yᵉ Brain; but we cannot ſuppose, that Sleep is occasioned by either of these in it's natural State — I grant, yᵉ recumbent Posture, does contribute to bring on ſleep, but not by sending more blood to yᵉ Brain. but by taking off Irritability, & diminishing the action of yᵉ Muscles — 2ᵈ Cause, viz. yᵉ immobility of yᵉ Nervous fluid — Now we know Sleep may be brought on by such Causes, as

78) induce an immobility of y^e Æther of ye Nerves, ſuch as 1st *Cold*, which ſometimes brings on ye Sleep of *Death* — we always find it act by inducing ſleep first, & an inſenſibility of ye nervous System — the Sleep of the ſleeping Animals, is brought on entirely by Cold — this we infer from their being ~~sea~~ so easily revived by warmth — this *Van Swieten* tried upon a Bat, with ye most desireable Succeſs — heat y^n must act by restoring ye mobility of y^e Æther, & after y^t ye Irritability of ye System. — 2d *Narcotics* act by destroying ye mobility of ye nervous System — some ſuppose y^y act on ye Maſs of ye Blood so as to thicken it — others ſay, y^y rarify ye Blood & thus cause it to compreſs ye Brain, & so induce ſleep — but we have many facts wh^t ſhew us that y^y act directly on ye Nerves, & y^t too in proportion to y^e ſenſibility of ye part they are applied to. — I infer then, y^t y^y act ſolely by destroying ye mobility of ye nervous fluid; in what manner I have formerly hinted — but neither of these cauſes can act in inducing natural periodical ſleep — we must therefore ſeek for ye cauſe of ſleep in ye 3d ſet of Cauſes, viz, ye want of impulse only — This

appears to be yᵉ only true cause of natural Sleep — you may make a Person fall asleep at any time by removing all impressions, or Stimuli from yᵉ Body, & agitation from yᵉ Mind — we often find one single impression will bring on Sleep. which must be, by taking off the attention of yᵉ Mind from any other impression — a hearty Meal induces Sleep only by occupying yᵉ ~~[illegible]~~ attention of yᵉ Mind on yᵉ Stomach in digestion — yᵉ Animal System is no Automaton, but requires external impulses to keep it in Action — yᵉ Æther is always aiming at an equilibrium, but impulses destroy it — now when they are removed, an Equilibrium, or rest is brought on, which, tho' it does not induce Sleep itself, yet it disposes to it — As yᵉ Animal System requires to be excited, & without impressions Life would soon be extinct, there must be something on to keep yᵉ Æther in an excited State, in waking in yᵉ Brain — When all Stimuli are removed, yᵉ Brain collapses, or acquires a state of immobility — It is easy to conceive why yᵉ collapsed State of yᵉ Brain, or Sleep succeeds a want of impulse. — All this

80) corresponds strictly with yᵉ manner whᵗ *Cold* & *Narcotics* produce artificial Sleep, whᵗ I imagine to be by destroying yᵉ mobility of yᵉ Æther, & not by mixing wᵗʰ it — but a difficult Question occurs here, why does a disposition to ſleep always follow exercise? ſhould not exercise act as a ſtimulus & thus put off ſleep? this must be referred to a certain Law in our Constitution — *exercise* when yᵉ Æther is in an excited State diminishes its exciteability, — thus all ſtimuli, we know, after being long applied lose their power of exciting Motion, which is owing (not to yᵉ fluid of yᵉ Nerves being exhausted) but to its *exciteability* being destroyed. now all exercise, whether of yᵉ Body, or of yᵉ Mind acts in yᵉ ſame manner. —

this in my opinion ſolves yᵉ difficulty, we proposed, *viz.* whᵗ does waking depend on? 1ˢᵗ on yᵉ Circulation of yᵉ Blood in yᵉ Brain & a moderate degree of tension always keeping yᵉ Æther in an excited State.

— this is yᵉ reason why an increased action of yᵉ heart, or cold feet, prevent Sleep, by determining too much Blood to yᵉ Brain.

There is another cause of Sleep, whᵗ we did not mention: viz. Heat — this when increased beyond 62° acts as a sudorific, either by taking off tension, & lessening yᵉ generating power of heat in yᵉ Body, or by acting on yᵉ surface of yᵉ Body only, & thus deriving Blood from yᵉ Brain. — Let us now enquire into yᵉ different degrees of excitement in yᵉ Other — yᵉ highest degree of excitement is in Maniacs, — hence yʳ prodigious strength, & their patience of Cold (yᵉ excitement in yˢ case is so high, as to resist impressions) yˢ is yᵉ most opposite degree of excitement to Sleep — yᵉ 2ᵈ is yᵗ whᵗ occurs in yᵉ ordinary state of waking — yˢ degree may be subdivided several times, according to yᵉ Vigor or debility, gaiety or melancholly whʰ Persons feel when awake — a 3ᵈ degree is yᵉ state of Sleep — yˢ also is different in degree — thus, those who dream, have some of yʳ functions perfect — yˢ yⁿ is still a degree of excitement — there is a constant energy from yᵉ Sensorium in yᵉ waking State in all the Nerves — now in dreams, part of yᵉ Brain may remain uncollapsed, & those animal functions which we ~~may~~ see, may proceed from yᵗ part of yᵉ Brain, from whence yʳ Nerves are derived, not being collapsed — all those actions we commit during sleep, never fatigue us, wht is owing to ym not being attended wt Sensation or volition — this is ye reason yt ye heart is never tired wt beating — a 4th degree is *Syncope*, a 5th is *Death*. Syncope depends on ye withdrawing ye exciting powers, as ye action of ye heart and ~~Brain~~ Arteries on ye Brain — ys we prove, from its being prevented by keeping ye Body in a recumbent posture — *Death* depends on a collapsion of ye Brain, while ye rest of the System remains unhurt — this is evident in yt Death wht is brought on by fear or joy in excess — I think we might bring all ye Causes of Death to ye same principle — I shall now mention ye several exciting & collapsing causes of ye Brain — ye 1st exciting Cause is heat — ys we prove from ye sleeping Animals, being colder in Winter, yn in Summer — 2d Cause is ye *Action* of ye *heart* — 3d ye Exercise of all ye vital & natural functions — 4th ye tension of all ye different parts of ye System, depending either on ye Solids, or on ye fluids — ys is evident from ye remarkable Effects wht ye tension of some one part has, when rendered tense by a full secretion, as yᵉ seminal vesicles — a 5th Cause is all yᵉ sources of Sensation — I mean direct sensations — a 6th Cause, is reflex Sensations, or those wh. are attended with pleasure or pain — this is somewhat doubtful — a 7th Cause may be a certain condition of yᵉ Brain, altho' we cannot pretend to explain it — an 8th Cause is Sleep — I said before yᵗ weaking is a part of violence, kept up by stimuli — now Sleep puts yᵉ System into a more exciteable State, & restores yᵉ exciteability of the Ether — Let us now enquire into those causes, which take off exciteability, & bring on Sleep — yᵉ 1st is Cold, yᵉ 2d. yᵉ weakened State of yᵉ heart 3d yᵉ weak actions of yᵉ vital & animal functions 4th the absence of Sensations, not established necessarily by habit, for yᵉ presence of these excite yᵉ Brain — 5th any thing yᵗ takes off tension — 6th direct Sensation — 7th Sedative impressions 8th some Sensations which are reflex — 9th Exercise — 10th Compressions of yᵉ Brain — on this Subject, see Dr. Gaubius § 523, & 524 — We come now to speak of yᵉ different States of yᵉ Nerves, as inveloped in yᵉ particular ~~men~~

Membranes, they are liable of being more or less fit to propogate Motion — we know of no cause wht can influence these but compression from Tumours or other causes — compression may vary considerably, & thus produce different effects, as in numbness wht arises from ye compressing of a Nerve, & in a total compression — We go on to speak of ye different states of ye Sentient Extremities these are greatly varied, — but depend more on ye apparatus contrived for forming impressions, than on ye ~~state~~ different State of ye Nerves — ~~both ye Nerves~~ — but ye Nerves are more or less sensible, depending, 1st on habit, 2d. from ye State of tension in Muscles from distending fluids — an over tension, we know, increases sensibility, as in case of an Inflammation of ye Eye — I will not pretend to say, want of tension diminishes sensibility — 3d. upon ye different states of energy in ye Sensorium, when ye energy is very strong, it diminishes sensibility, & lessens ye force of impression, as in ye Case of Maniacs — 4th.. upon ye mobility of ye Nervous fluid: wht we know

differs in temperaments, Age, & Sexes, &c. (85
may be varied in persons, as in ye Hydro=
phobia — We know of no Stimulants which act
directly on ye Sensorium — ye only Stimulants
yt act upon & excite ye Sensorium are Sedatives,
such as Opium & Wine — Let us now enquire
into ye condition of ye moving fibres — Their grea
ter or lesser irritability will depend — 1st upon
Organization; by which I don't understand any
difference in ye ultimate fibres of these Mus=
cles, but a greater irritability of them — this
we see in all those Muscles wh. are moved
involuntary, & this is occasioned by their being
formed sooner than ye Organs of ye natural
functions — The vital Organs retaining yr
irritability after Death, while ye other Organs
lose their motion, depends entirely upon ye
different Circumstances of ye heat & flexibility
The vital Muscles are, moreover, ~~better~~ less con=
nected with cellular texture, & consequently
ye Arteries will continue more force after Death — 2d
upon Repetition, wh. always increases Irri=
tability, — wh. may serve still further to acct.
for ye Hearts retaining its Irritability longer
than any other Muscle after Death —

3d. upon ye. Muscles being more or leſs exposed to various Stimuli, wch. give a greater or leſs excitement to ye. Other — 4th. on the greater or leſs tension — when ye. tension is ~~greate~~ increased too much, it excites ye. Sensorium — ye. tension may depend on ye. Ballance between ye. Sensorium, & ye. moving Extremities, as we ſaid before in explaining ye. difference of mobility in different Ages — or 2d. on ye. Ballance between different Muscles, especially those wch. ~~depend~~ are Antagonists — hence we ſee ye. reason why an Atonia follows ye. want of an usual Stimulus, as in ye. Caſe of Dram drinking, lifting Weights, &c, which act by bringing on tension, & a Ballance between ye. Muscles — 5th. upon ye. mobility of the Nervous fluid — hence we often (tho' not always) find it proportioned to Senſibility — 6th. upon ye. functions of ye. Arteries, which have nothing to act against them but ye. Blood — their tenſion will depend therefore 1st. upon ye. difference of Distribution — 2d. upon ye. Quantity of Blood in ye. Body — 3d. on ye. greater or leſs resistance of ye. Veins — 4th. on ye. force of ye. heart — 5th. upon ye. Resistance of ye. Arteries themselves — tension therefore, varies in ye. Arteries in different Stages of Life, — as we explained at ſome length formerly — 6th upon ye changes of heat and cold — 7th On ye determination of ye Blood to ye ~~extremities~~ ſurface of ye Body — From wht. has been ſaid concerning ye different States of ye Arteries, we may readily ſee ye cauſe of a Plethora, which depends on a laxity of ye Arterial System, which gives way to ye accumulation of ye Blood — when this ye Case, the Irritability of ye System is increased, & hence ariſes ye frequency of Hæmorrhages in plethoric Persons. — I go on to ſpeak of ye changes of ye Alimentary Canal, & 1st of ye Stomach, — the tension of which depends 1st on ye State of energy in ye Sensorium — 2d upon ye State of ye distending Powers — 3d of stimulating powers applied to it — 1st a greater degree of energy from ye Sensorium, is neceſsary to ye Stomach, so yt general changes in ye Nervous System have a power of influencing its ~~tenſion~~ tension — 2d. It is ſurpriſing to ſee wht. different States of tension it is capable of from ye Aliment taken in — ye Blood wht. it contains, likewise tends to influence its tension considerably, as it is more or leſs in Quantity — 3d. its ten-

-sion

tension is much varied from impreſsions made on it as a ſentient & irritable organ, by ye great Variety in food, medicine &c taken in. — Upon ye whole ye Stomach is ſubject to ye greatest changes in it's ſtate of tension, of any part of ye Body, except ye Sensorium, & has ye most extensive connection with ye rest of ye System — What has been ſaid of ye Stomach, will apply to all ye *Intestines* — but again ye muscular fibres of ye *Bronchia* are capable of great variety in their tension from changes in ye Air, and other Causes — in a word, every hollow Veſsel in ye System, is liable to have it's ſtate of tension varied by some of ye Causes we have mentioned — such as ye *Glands*, *Lymphaducts* &c — but these cannot be ye ſubject of our enquiry here — we come now to treat of ye much talked *Sympathy*, a term yt is often used with great Ambiguity — ye Nervous System is a continued Maſs of Matter, by wch means it is adapted to communicate Motion in all it's different parts — this is what has been called Sympathy, & is resolved into ſome inexplicable Consent between one part and another — when we enquire into the

Cause of Sympathies, we ſhall find they evidently depend upon a communication of Motion, whh affects ye whole System — thus ye Epilepsy is supposed to excite a general Sympathy, from ye Degree of ſtimulus whh brings it on, & not from a general relation between ye part impreſsed, and ye whole System — thus ye Sight, or touch of a Serpent induces paleneſs not from any communication between ye parts affected, but from a Communication established in ye Brain — in all cases of ye kind, I think ye term Sympathy improper, as ye facts we have mentioned, all depend nothing but a communication of Motion — but we ſee Motion excited in one part only, pretty uniformly, by ye ſame impreſsion — we call this particular Sympathy thus ye —— of a tile, very uniformly, excites an uneasy Sensation in ye teeth, & cold feet — in ſome Constitutions very generally induce a Cholic — But may not all particular Sympathies thus be reduced to ye general Sympathy? I believe there are few of these Sympathys enumerated by Dr. Wytt, but what may be reduced to this head.

2d. We reject all those Motions, whh are ye effects of habit & aſsociation from particular Sympathy; as many of them are arbitrary & may be laid aſide at pleaſure — but again I reject all those motions from Sympathy, which ſucceed, & thus produce one another — thus we often ſee yᵉ Oesophagus affected with a Spasm from an original affection of yᵉ Intestines, being propagated upwards without any kind of Sympathy — All yᵉ particular Sympathies may be reduced to general, & depend upon an affection of yᵉ whole nervous System, as we ſee ſome of them brought on by a variety of different Causes — thus we find a locked Jaw brought on by a wound in any Tendon of yᵉ Body. — Sympathy means no more yⁿ a mutual action between yᵉ ſeveral parts of yᵉ System, which implies yᵉ fact it ſelf without aſsigning any Cause — Sympathy is improperly applyed whⁿ we ſpeak of yᵉ mutual action of yᵉ Brain, & every other part of yᵉ System — We had much better ſpeak of mutual action ~~& volition~~ arising from ſensation & volition — another Cause of Sympathy has been derived from yᵉ Anastomoses of yᵉ Nerves, independent of yᵉ intervention of yᵉ Sensorium; but Dʳ Whytt has fully proved yt there is no foundation for such Sympathies. — it is evident still further, when we attend 1st to ye distinct Nature of our Sensations, which would not be ye Case if ye Nerves Anastomosed — 2d it is evident from Motions not being communicated laterally to any Muscles, on whh ye impressions are made — 3d In many Cases, where we think we see a communication of ye Nerves, this Communication disapears, when ye connection with ye Sensorium is cut off — 4th Communications of Motion are apparent in many Places, without any communication of ye Nerves — 5th In these Cases, where ye Nerves do communicate, we prove this Motion must be excited thro' ye Brain by motions being taken off from them, by stronger impressions made on ye Brain — all these Arguments sufficiently prove, that no sympathies can depend on ye Anastomoses of ye Brain — all connections of motions are attended with sensation, property or volition — so that I am ready to doubt yt Animal Actions do not depend on Anastomoses in ye Brain, but all of them originally, more or less arbitrary. — But don't we sometimes see connections of Motions where no *consciousneſs*, ~~of the~~ *Sensations*, or *Volition* do attend? This we must grant, but with this Restriction, that we were originally attended with *Sensation*, *propensity*, or *volition*, — their becoming insensible, is ye Consequence of habit — but to all I have said, we must add, that there connections of motions yt do not depend on ye intervention of ye Brain — as ye pain in ye Teeth from ye Noises of a file, wch depend on motion communicated directly thro' ye Bones, from ye Ears to ye Jaws — even soft parts are capable of propogating oscillations as well as Bones — this is illustrated from ye Case of *Kaw Boerhaave*, who is capable of distinguishing sounds by his fingers — inflammation is often propagated merely by ye communication of ye Blood Vessels — there is likewise a continuity of membranes which propogate motion, as in those pains which are felt in ye *Glans Penis* from a Stone in the Bladder — This finishes our account of the *Nervous System*.

Circulation of ye Blood. —

This Subject has attracted ye attention of Physiologists for upwards of 100 Years. — In treating of it we ſhall first ſpeak of ye *Cavities* in which ye Blood is contained — 2d of ye powers which move it. 3d of ye Course of ye Blood, & 4th ſome general Laws which regard ye Circulation — 1st the ſeveral Cavities, are ye *Heart*, *Arteries*, *Veins* &c & 1st of ye *Heart* — I ſuppose you are all acquainted with its Anatomical Structure — I ſhall only observe yt it is a hollow *Viscus*, containing two principle *Ventricles*, with two appendages called *Auricles*, & yet it is fixed to ye Arteries & Veins — These *Auricles* & *Ventricles* consist of muscular fibres, which run in various Directions — they are dilateable & contractable to ſuch a degree as entirely to destroy their Cavity & preſs out every drop of Blood from them — 2d. ye Arteries are formed of different Substances, which are applied to each other in ye form of layers — they consist of 3 coats — ye external, which is a cellular texture — ye muscular, which is of so compact a nature; as to resemble a tendinous or ligamentous

ligamentous coat — on this account Dr. Hunter denies its being poſseſsed of Irritability, but ſome later experiments prove ye opinion to be false — within ye muscular coat is another ſmooth polished coat — ye ſtrength of ye Arteries is very great, wh. appears from ye resistance yy are capable of overcoming — we have but few experiments to ſhew ye relative force of ye Arteries in different Sexes, Ages, & Animals — Dr. Wintringham found a force of 151 ℔ neceſsary to break ye Aorta of a young Man — he thinks ye absolute, as well as relative force of ye Arteries as yy recede from ye Heart — but his experiments do not ascertain, that this force is exactly proportioned to ye distance from ye heart — ye ſpecific gravity of ye Arteries increase we know, as yy recede from ye heart — ye thickneſs of ye Arteries always diminishes in proportion to yr Area — but then their density increases, & ye density yr force likewise ye form of ye Arteries when distended, is always circular — yy are in general cylindrical and conical, as we formerly ſupposed — This we prove from ye Branches of ye Arteries being larger, than ye Artery from whence yy come, or exactly ye ſame ſize — ye course of the

Arteries is ſeldom in a ſtraight Line, but
mostly in a flexure or winding form, eſpecially in those parts where y^y are ſending off frequent Ramifications — All branches go off from Arteries at acute Angles — we know of none y^t go off at obtuſe Angles — ye termination of ye Arteries are of three kinds — 1st into Veins by ye reflexion of ye Arteries — 2^d into Cavities, into which y^y pour ye Blood, from whence it is again absorbed by Veins, as in ye Corpora cavernosa Penis &c 3^d into ſerous Arteries, or Arteriæ ſecundæ generis (i.e.) Veſsels wh^h do not convey red Globules — these ſerous Arteries terminate in ſerous veins or in ſecretory Veſsels, or in open Cavities, as in ye Abdomen &c into wh^h ye fluid matter, found in them, is exhaled in ye form of Vapour — the next Cavity wh^h contains Blood, is ye Veins — y^y have an obvious layer of muscles near ye heart, a considerable distance below ye venal Sinuſes — till more experiments are made on Irritability, we may infer a priori, that most of ye Veins have muscular Coats, except ye very ſmall branches

— the density of ye Veins, is always greater. yn ye corresponding Arteries, and this like ye Density of ye Arteries increases as you recede from ye Heart — ye Veins according to some Anatomists are larger than ye corresponding Arteries, & more in Number — but what distinguishes them from Arteries is their Valves — they all take their rise 1st from red Arteries — 2d. from Serous Arteries — 3d from absorbents, as in ye ~~cav~~ *Corpora cavernosa penis* &c. where ye Blood is effused from ye Arteries, & afterwards absorbed by the Veins, without any immediate communication — even Lymph may in some Cases be absorbed by ye Veins, as in ye Brain, — where no lymphatic Vessels have ever been discovered — we find also in many Cases, as in *ecchymosis*, where there is an effusion of Blood, it is all absorbed in a very short time — surely the Veins must be chiefly employed for this purpose — II. The Blood filling ye right ventricle of ye Heart. from thence it is propelled into ye *Pulmonary Artery*, from which it is absorbed by ye *Pulmonary Vein*, & carried into the left Auricle & Ventricle from whence it is propelled by ye contraction of the Heart into ye ~~Heart~~ Aorta, whh distributes it to every part of ye Body, from whence it is returned by Veins into ye Vena Cava & right Ventricle where we first found it — We prove this to be the course of ye Blood — 1st from Hemorrhages, or transfusions whh deprive all parts of ye Body alike of Blood — 2d from ye situation, structure & function of ye Valves of ye Heart, whh admit of ye Blood's passage only in one way — 3d from Ligatures whh cause ye Veins to swell below ym 4th from ye structure of ye Valves of ye Veins which admit ye Blood in one way — 5th from ye Continuation of Arteries & Veins demonstrated by injections & Microscopes — this ~~applies~~ account of ye Circulation of ye Blood applies only to Adults ye Blood circulates in a different Manner in a Foetus — ye Motion of ye two Ventricles is Synchronous, as appears from a number of Experiments altho' Dr Nicols & others deny it — III. The powers by whh ye Blood is ~~applied~~ moved — ye 1st of these is evidently ye Heart, which some have supposed to be only one — it's Power consists in its Muscular

Muscular Contraction — it is either ye Vis Nervea, or a ſtimulus applied to ye Heart, that excites ye muscular Contraction — Stimuli applied to ye heart are of two kinds — 1st distension or 2d Acrid ſubſtances — these are again divided into mechanical & chymical — it has not yet been proved yt mechanical Stimuli have been applied to ye heart, nor do I think there is any thing like a chymical Stimulus applied to it, for ye Blood contains nothing acrid in it, & if it did, ye heart by length of time would lose its ſenſibility to it — I therefore judge distension from ye venous Blood only acts as a ſtimulus on ye heart. — there is also a considerable influx of ye Vis Nervea into ye heart in common with all Muscles — & upon this influx, ye stimulus of distension depends — yt is proved from ye effects of paſsions wch we know are capable of increasing ye action of ye heart — this gave riſe to ye notion of ye hearts being a Voluntary Muscle — what is ye force with wch ye Heart contracts? — did ye Circulation of ye Blood depend upon this alone, ye Question would be of some consequence — but this is not ye Case — I would therefore reject all ye Solutions which have been given to this Proposition, by ye Physiologists, & Mathematicians — we find almost all of them different in their Calculations, most of them have exalted it too high, in a word ye Data, on wch yey found yr Calculations are not to be admitted — wt what velocity does ye Blood move from ye left Auricle to ye Aorta? this might be solved could we know ye exact Area of ye Aorta, with ye ~~exact~~ size of ye Ventricle — no Physiologists have yet agreed in yr account of this — in some Men it may be greater than in others — so that each of these Problems are undetermined — ye alternate Contraction & Dilatation of ye heart, depends, not on ye influx of Arterious Blood, nor pressure of ye Nerves of ye heart, but ye influx of ye Venous Blood, wch is alternately applied & removed — there is a muscular structure of ye heart, wch disposes it to alternate contractions & Dilatations — ye Resistances to be

100) overcome by ye Heart are — 1st Elasticity of ye ~~nervous~~ Arteries — 2d. ye pressure of ye Atmosphere — 3d. ye quantity of Blood to be removed — — 4th enlargement of ye Arteries, as ye proceed from ye heart 5th flexures & Angles of ye Arteries 6th ye effects of Anastomoses — 7th ye friction of ye Blood on ye Arteries, wch is supposed to be ye most considerable Resistance — but ye resistance arising from ye Action of fluids on Solids, is so inconsiderable as not to deserve mentioning — 8th ye viscidity of ye Blood, — but this has been unjustly accused — all viscidity is obviated by ye heat of ye Body — ye component parts of ye Blood, are in a diffused state, & upon ye its fluidity depends — I have enumerated all ye Resistances ye Heart has to overcome, but yt are by no means so great as has been supposed, nor can yy be subjected to any regular Calculations — ~~but ye~~ They do however retard & resist ye Action of ye heart a little, & that to such ~~a degree~~ ~~that we must call~~ a degree that I think we must call in some other power

to account for ye force & velocity of the Blood beside ye action of ye Heart — this power then is ye action of ye Arteries — Physiologists object to this, because yy have not been able to discover muscular fibres in ye Arteries; but later Observations have shewn them to us, tho' in a more compact, & ~~cartilaginous~~ apparently cartilaginous State in all ye Arteries. — I think by reasoning *a priori*, we might infer that ye Arteries are possessed of Irritability, from ye difficulty of accounting for ye circulation of ye Blood, without supposing it — but ye muscular fibres are proved by a late experiments, by an ingenious German Gentleman, in a dissertation, *De arteriarum & venarum vi irritabili* — I formerly adduced many other Arguments drawn from ye Diseases of ye Heart & Arteries — but these are of less consequence since ye above experiments have come to hand — We have many confirmations of ye Arteries from their Diseases, such as inflammations, topical fevers, Palsies Gangrenes &c — It is a queſtion what additional powers are imployed in ye Circulation of ye Blood, — Dr Whytt has wrote much on ye oſcillatory motion of ye ſmaller Arteries — for my part, I have difficulties in underſtanding, as well as admitting this doctrine, but would rather chuse to attribute the Motion of ye Blood in ye ſmaller Arteries to ye Irritability we have been ſpeaking of — we have reason to believe that this Irritability increases as we recede from ye Heart — there may be other powers wch aſsist in propelling ye Blood thro' ye cappillary Arteries, analogous to those ~~[illegible]~~ powers wch ~~aſsist~~ promote ye circulation of Sap in plants — How far ye Æther of our Nerves may act, I cannot pretend to ſay, there is no neceſsity of calling on ye oſcillatory motion of Dr Whytt — heat can have no effect in accelerating ye circulation ~~of~~ in ye ſmall Veſsels, for we have no proofs of its either generating, or increasing in ye capillary Arteries — ſome have called in intestine motion; but ~~as~~ ye. can never exist in ye. circumstances which attend ye. Blood's motion in ye. ſmall Veſsels — Let us now enquire into ye. powers wht. propel ye. Blood in ye. Veins — these are, 1st. all ye. powers we have been ſpeaking of — but these alone are not ſufficient — 2d. Dr. *Vaſsner* has proved that Irritability is not peculiar to ye. *Venous ſinous* only, but to ſeveral Veins wht. he examined as the *Vena Cava deſcendens*, *jugulars*, & one or two more — but he could not find it in ye. *Illiacs*, & ſmaller Veins; nor do I think ye. ſmall Veins are poſseſsed of the least Irritability — 3d. Another Power, is the action of ye. incumbent Muscles — this acts conſiderably in propelling ye. Blood in the ſmall Veſsels, or rather chiefly, for I cannot conceive of any acceſsory power — 4th. The alternate Action of ye. Diaphragm in reſpiration contributes to propel ye Blood thro' the Liver where it is most apt to ſtagnate. — We ſhall therefore proceed to ſpeak of Reſpiration, and its action in propelling the Blood through ye Lungs.—

Of Reſpiration

We ſhall first enquire into ye following Circumstances—1st By what organs Reſpiration is carried on?—2d What is ye effect of these alternate actions of ye Throat on ye Blood?—3d Why theſe motions are alternate?—4th What changes the Air, taken in, undergoes?—1st By wht powers is reſpiration carried on?—We must, to understand this, consider ye Lungs in ye light of a Bladder which may be alternately filled and emptied of Air at pleasure—the Lungs are enlarged by ye Thorax in inspiration, during wht time ye Air rushes into them—ye Thorax is enlarged in all directions in breathing by ye action of ye Diaphragm, & ye Intercostal muscles, by the first vertically, & by ye last horizontally—2d What are the effects of these alternate contractions, & dilatations of ye Lungs on ye Motion of ye Blood? To quicken its paſsage thro' ye Lungs—3d Why are yy alternated?—From an uneasy

Sensation which ye Lungs feel after inspiration & expiration — Inspiration is a violent state from ye exertion of muscular parts, and upon this account Expiration necessarily follows it — there is another use, or necessity for Respiration, ~~which~~ leads us to enquire 4th the changes which ye Air undergoes in ~~breath~~ Breathing — this was supposed to lose it's elasticity by being taken into the Lungs; but late experiments shews us that ye Elasticity of the Air is increased rather than diminished. — there are many other opinions of ye changes of the Air in ye Lungs wch do not deserve notice — the present Opinion is, that there are vapours exhaled from ye Lungs analogous to that arising from ye Earth in many places, & from Liquors in fermentation — these Vapours are called *Memphetic Air* — it is universally a poison to Animal Life — there is no other way of rendering it inert, but by diffusing it with ye common *atmospheric Air* — Respiration then, seems to be provided as an outlet to this ~~Air~~ Vapour — common Air seems to dissolve this Air, and it is capable of being ſaturated with it in ſuch a manner as to ſerve ye Lungs only for a certain time in a limited Quantity — We come now to ſpeak of ye effects of ye Circulation of ye Blood — theſe are 1st to distribute heat to all parts of ye Body — 2d. to ~~irritate~~ distribute humidity to ye Body — 3d. to give tension to ye System it is well know that it stretches ye Arteries, and I may add, every muscular fibre too 4th. to afford ſecreted Liquors, & among others ye nutritious juice — as ye Chymical part of our System or ye Doctrine of Animal Fluids

A Course of
Lectures
on
Midwifery.

by

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Professor
of
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Philadelphia.

Lectures on Midwifery. —

Introductory Lecture. —

The art of Midwifery was very little known among the antient Surgeons — Hippocrates was the firſt who wrote on this ſubject, & therefore may with propriety be called the firſt Man-Midwife. —

He, like the Moderns, divided labours into three Claſses, *viz*, *natural*, *laborious*, and *preternatural* — Natural when the Vertex presents with the face to the hollow of the Os Sacrum — Preternatural, when any part but the head presents — in this case he approves of turning the Child, & reducing it to a natural position, adding, if the Legs can't be puſhed up far enough, it will be proper to cut them off, that the Child may be turned with more facility — but *Celsus* found this method unadviseable; therefore he ſays, if the feet present or any other part by which we can come more easily at the feet, to bring them down into the ~~Pelvis~~ Vagina, & deliver by them — this practice is universally followed by the Moderns; for we find, tho' the Uterus be ever ſo much contracted, if we once get hold of the feet, we can ſoon deliver — Laborious, when the Child ſticks in the paſsage, ſo as not to be delivered by the natural pains; in this caſe he orders the head to be opened, & the Brains evacuated — but we ſhould be very cautious how we perform this Operation, as the Child's head will ſtick 30 or 40 hours without injuring either Mother or Child — at present this practice is much laid aſide, as we find the head may be brought away without the use even of Forceps; but if the retention of the head is owing to its largeneſs, or deformity of the Pelvis, & the Woman almost exhausted by continual exertions of fruitleſs pains, we must, if the head is low, apply the Forceps immediately and extract, but never destroy ye Child, if it can poſsibly be avoided, unleſs the preservation of the Mother requires it. —

Of the different __Authors__ on __Midwifry__

__Parey__ wrote a ſhort treatiſe, tho' ſcarce worth purchasing – He was the firſt who propoſed bringing down the feet in preternatural labours – __Mauriceau__ who wrote a regular System of Midwifry, his caſes are worth reading – __Chamberlain__ was famous in London about the time Mauriceau was in France – he boasted of poſſeſſing a ſecret enabling him to deliver the moſt difficult caſes – this ſecret was ſuppoſed to be the Forceps – he however was defeated in attempting to deliver a woman at Paris – he abridged & translated Mauriceau into English. __Daventor__ is next, & worth reading, except on the oblique Uterus, for whenever the Uterus is obliquely ſituated, the Child may be delivered by the natural pains; ſo that rarely a caſe of this kind happens, where turning is neceſſary – __Portal's__ flooding caſes deserve particular attention – __La Motte__ is worth reading – __Chapman__ firſt publiſhed an account of the Forceps in 1703, & deserves attention — Morbury was the first english Author — he wrote in 1723 — Burton is recommended as an ingenious Theorist — Gifford's cases are well wrote, but is wrong in using force in difficult Cases — he alſo frequently delivered the Placenta immediately after the Child, wh. is by no means adviseable — Dr. Ould, who first publiſhed Gifford's cases, discovered that the Child presented with an Ear to the Os Sacrum, which is a natural presentation — the Antients always imagined the face came down in the hollow of the Os Sacrum; but we find in natural Cases it does not — Smellie is a good practical Writer, & his observations may in general be depended on — His directions for using the Forceps are judicious, tho' not perſpicuous; however he is not always be followed, ſince he recommends using the Forceps when the head is high up, at which time they ſhould never be used — he had considerably improved the Forceps by ſhortening them, & his inſtruments are now more rational than any others. —

On the Pelvis. —

The Pelvis is composed of the Os Sacrum, Os coccygis, & Oſsa Innominata, viz. Ilium, Iſchium, & Pubis — the cavity of the Pelvis is forward - each ſide is formed by the Rami Iſchii & Pubis, backward by the Sacrum and coccygis — the eminences of the Ilia joined to the Pubis, make what is called the Brim of the Pelvis; it is more ſpacious in females than Males; & the Rami Iſchii are more ~~different~~ distant in the former — The Os coccygis has ſome motion in the time of labour — Smellie thought it ejected two inches at times, but this is denied in Morand's cases, & one that fell under the Dr's own Observation — the Lady was of a delicate Conſtitution. —

He is convinced that the Bones of the Pelvis have in ſome cases ſeperated, tho' rarely. The Pelvis is more capacious at its upper part, & wider from ſide to ſide, than from Pelvis to Sacrum; yet the form is nearly cylindrical — a well formed Pelvis ſhould be between five & ſix Inches from ſide to ſide — the

) Dr. has a Pelvis quite circular, which meaſures 6 inches from Pubis to Sacrum — the inferior opening in a distorted Pelvis is much more capacious than in a well formed one. — hence we find the retardation of the delivery proceeds from the Brim, being very narrow which indicates that the Labour ſhould be prolonged, as the dilatation of the Os Tincæ will be more tedious, than in a well formed Pelvis. The Os Tincæ is much higher in a distorted Pelvis, by reason of the Foetus being wholly confined above the brim, & consequently the Collum Uteri will be more on the ſtretch, and thrown either over, or to one ſide of the Pelvis. The Dr. related a case of a Lady at Derby, who had ſeveral easy labours, untill advancing in years, ſhe became rheumatic, & was thrice delivered with difficulty — the fourth time the Child's head was obliged to be opened, but would not come down — at length by pulling with a blunt hook, it ſeperated from the body which could not be extracted — the Lady died, & was opened, & from the Pubis to the Sacrum was found to be only an inch & an half — We cannot ~~determine~~ judge the dimensions of the Pelvis by feeling the ~~Pelvis~~ Pubis; if we can easily feel the Vertebræ of the Sacrum, we may conclude that the Pelvis is narrow — Deventer was the first who observed the Axis Vaginæ — it is forward & backwards of the Os Pubis — there is no common Axis, tho generally backwards and downwards; not according to the Axis of the Body, for a finger paſsed in that direction would never find the Os Tincæ — from this we learn that the Forceps can never be employed when the head is high up, as it would be impoſsible to incline the handles far enough back —

To regulate you in the application of the Forceps, you are to consider the ſituation of the Child, the ſtate of the Pelvis, & the true cauſe of obstruction — when you do apply them, carefully support the Perinæum, which at this particular time is very thin; the consequence, if wounded, being mischevious & troublesome. it is a long time before it is repaired if ever.

On the female parts of Generation. —

The Mons veneris is a fat prominence, ſituated

8) in the upper part of the Symphisis of the Os Pubis & is covered with hair from the lower part of this the Labia majora begin, & gradually decrease, till they are lost in the Perinæum — they are subject to various diseases, as Inflammation, Suppuration, Ecchymosis, Dropsy, &c — The Dr. related a Case where he was going to open the head, the Labia being exceſsively ſwelled, burst, & discharged a quantity of blood — The serous humours of the Labia, which we find during Pregnancy, will generally be absorbed — That part where the Labia end, is called Frænum Labiarum — the Clitoris is a ſmall projection between the Labia juſt above the Symphisis Pubis, — it is analogous to the Penis in Men, but not ſo ſtraight — it has no ſpungy texture, or Urethra, but has two Crura which run curved from Ischium, & are liable to preſsure in coition — over its end ~~hangs~~ which is called Glans Clitoris, hangs a loose, folding Membrane called Præputium. The Labia minora, or Nymphæ arise from the Præputium run downwards, & are loſt in the Perinæum — their use is to direct the ſtream of

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Urine, & enlarge the orifice of the Vagina in time of labour. — Meatus urinarius lies at the bottom of the ſmooth ſurface which is extended from the Glans Clitoridis downwards. It may be easily discovered in women who have had Children, — ~~By~~ by the protuberance. In Virgins it is more inwards under the Pubis, & therefore more difficult to be discovered — In introducing the Catheter, place it in the Groove between the Nymphæ, then advance downwards till you meet with ſome obstruction, which is no other than the protuberant ſurface of the Meatus, & if you humour it a little it will easily ſlip into the paſsage, then you are to incline the Catheter a little downwards. —

The Hymen is an internal Membrane ſituated about an inch into the Vagina — its figure is ſemilunar, ſmooth at its origin, afterwards wrinkled, & only to be ſeen in Virgins, being torn in Coition; after which it forms Carunculæ myrtiformes, & from thence begins the Os Externum — The Vagina leads to the Uterus, between the Bladder & Rectum — The Uterus lies in the Pelvis, with its fundus loosely on the first, or or ſecond Vertebra of the Loins. — The Os Tincæ in the unimpregnated State is ſituated on the Os Coccygis, & continues ſo during the first 3 or 4 Months — The Ligaments of the Uterus are all reflections of the Peritonæum, which connects it anteriorly to the Bladder, & posteriorly to the Rectum; hence injuries of the Uterus are easily communicated to the Bladder & Rectum — We may easily discover the true ſituation of the Uterus by introducing a finger into the Rectum — The Tubæ Fallopianæ arise from the fundus Uteri, run thro' the ligamenta lata, & terminate~~d~~ in a fimbriated Extremity called Morsus Diaboli — the inner surface of the Fallopian Tubes is very vascular & villous — Veſsels are observed to paſs from the Tubes laterally acroſs the Ovaria penetrating their ſubstances — It is probable in the act of Coition the more volatile parts of the Semen after being recieved into the Fallopian Tubes, are conveyed by the Veſsels lining their inner ſurface into the Ovaria, whereby an Ovum becomes impregnated, which being enlarged by a proper nutriment, breaks thro' the external Coat of the Ovarium, is taken up by the fimbriated extremities of the Tubes, which are supposed to be in contact at this time with the Ovarium, & translated to the Uterus. — The Ovaria lie just behind the Fallopian Tubes, & are grasped by the Morsus Diaboli when they are enlarged, which they are supposed to be in Coition — There is a paſsage into the Uterus from the Ovaria, but when the Tubes are obstructed, they cauſe ſterility. —

On the gravid Uterus

At the end of the third or fourth week, they generally put on the appearance of an Egg — the Uterus gives it an external covering, from wh^h the circulation is carried on from Mother to ~~Child~~ Ovum, tho' not in a common way — probably by absorption. —

The Doctor thinks the Female conduces to generation by the Ovaria — Ruyſch always supposed the Placenta adhered to the Fundus Uteri; but experience teaches us, y^t the Ovum may, & does adhere to any part of the Uterus — when it fixes to the Collum, it is thought a Dilatation begins there, but as a greater number of Veſsels enter in the Fundus,

12) and as it ſeems thicker and more capable of distension than any other part, it ſeems reasonable to think the dilatation begins there — In the early Months the involucrum leaves a large proportion to the ~~[illegible]~~ Embryo, but in the latter Months, the case is reversed — In the ~~early~~ third or 4th Month~~s~~ we cannot poſsibly ascertain whether the woman is with child or not — The touch is alſo uncertain, for at this time the Os Tincæ & Uterus have undergone but little change — If we are called in to examine at this time, we ſhould be very cautious in our decisions, for the preſsure, if there is any, may be owing to an inflation of the Intestines, or ſchirrous Uterus, or the Ligaments may be diseased; therefore when called in those early Months we ſhould endeavour to divert them for a Month or two longer, & then if required, we may determine by examination — for in the 6th Month the Uterus begins to rise in the Pelvis, and may be felt like a hard tumour — then alſo, the preſsure on the inferior Ligament between the Pubis & Sacrum may be felt — these indications aſsure us the woman is pregnant.

In proportion to the advancement of pregnancy, the Os Tincæ, from its natural ſituation on the lower part of the Os Sacrum riſes up towards the Pubis – as the Uterus aſcends in the 7th Month the preſſure is more conſiderable, the Os Tincæ ſofter & ſhorter; and in the 9th Month almoſt worn away, & ſcarce to be diſtinguiſhed from the Uterus – In examining we muſt go gently round with the finger, & by bending it a little you will ſoon diſcover an Orifice which is the Os Tincæ – theſe are the appearances of the firſt pregnancy, but in Women that have had many Children, the Os Tincæ will be longer, tho' at the ſame time ſoft & flabby – ye tumour in the Abdomen is not always ye ſame at ſtated times – it depends much on the ſtructure of different women – a Woman of a distorted Pelvis, & ſlender Belly, will often carry the abdominal tumor at the Navel at the 6th Month, which is contrary to Smellie's determination, who confines it to the 7th, which in robust, well-formed women may be juſt; for in general we ſhall have the tumor at the Navel at the ſeventh Month; half way to the Scrobiculus

Cordis in the 8th; & 9th Month to it's full extent — In examining at the 4th Month, we may discover whether the Woman is pregnant by introducing ~~the~~ a finger at the Vagina, & laying ~~the~~ an other on the Abdomen, the Woman at the ſame time holding her breath. If the Os Tincæ be worn away, ſoft, & high up, with considerable preſsure, we may conclude the Woman to be near her time, tho' the hard tumour be only between the Navel & Scrobiculus Cordis with an equal distension of the Abdomen; & likewise we may consider it as a ſpeedy labour, especially in ſhort, thick Women — In all tall Women the tumour will remain high for a long time — The Uterus remains of the ſame thickneſs in all ſtages of pregnancy, but is more ſpongy in the latter, by an enlargement of its Veſsels, & increased quantity of it's fluids — The Uterus is more fixed in Women pregnant of the first Child and the fundus more upright than in those that have had many. — The Parietes Abdominis become greatly relaxed, & ſuffer the fundus Uteri to fall pendulous over the Pubis, by which the Os Tincæ will be thrown backward.

In ſome the obliquity of the Uterus is very viſible being inclined to the one or other ſide of the Abdomen — It was first observed by Daventor who in that Case directed the Child to be turned, but the Dr. thinks this obliquity has but little effect on the Os Tincæ which by preſſure from the Child's head will dilate & give it a natural paſſage — He related a Case where the obliquity was ſo great, that the Woman appeared to be carrying ſomething under her Arm, by her Apron — The figure of the Uterus is more or leſs conical, not unlike a Pear or glaſs bottle, tho' in general it depends on its contents — The Arteries, Veins, & Lymphatics of the Uterus are very numerous, the Arteries & Veins increase in ſize, as the Uterus increases, & terminate in the Cells of the Placenta — The blood is ſuppoſed to be abſorbed by the Veins of the Placenta, from whence it is carried to the Foetus thro' the Umbilical Veins, & returned back to the Placenta by the Umbilical Arteries, by which means the circulation is carried on between the Mother & Child. — The Uterus at its full time of pregnancy generally inclines to the right ſide, in the 5th & 6th Month it is in its Center. The Fœtus swims in a liquor called Liquor Amnii, contained in a fine transparent Membrane; next to which is the true Chorion, & on the outer ſide the ſpongy or falſe Chorion, which is the connecting Membrane between Mother & Child — The Placenta is a ſoft, ſpongy, cellular ſubstance, with a congeries of blood Veſsels. The Funis umbilicalis is compoſed of two Arteries & one Vein — the arteries are ſmall & convoluted; the vein larger — they are covered by a continuation of the Amnios till they arrive at the Navel — The Placenta is ſubject to diseases *viz*, Schirrosities, Hydatids, &c — in the laſt case it appears like a bunch of grapes — The Veins of the Placenta have Valves, — The Placenta of Twins are generally connected together by a production of the Chorion, each Fœtus having its own Amnios.

Of *Conception*. —

The ſigns of virginity are uncertain, for there have been instances of Women with Child & the Hymen entire. — The ſigns of Conception are various — the principal are the 4 following — 1. Sickneſs at the Stomach, and vomiting from the new ſtimulus given to the Nerves by the increased Burden — 2. a Suppreſsion of the Menses, tho' ſometimes they continue in the early Months of pregnancy — they then come from the Collum Uteri; & there have been instances of the Menses flowing all the time of pregnancy; nay even at no other time, which gives room to ſuppoſe that they flow ſometimes from the Vagina — 3. The increase of the Uterus — 4. The motion of the Foetus. — Hippocrates in one of his aphorisms, says, if the Menſes are ſtopt, with no interruption to health, we may conclude the woman is pregnant. The ſwelling of the Mammæ follows that of the Uterus, & the nipples, from a rose colour, aſsume a dusky hue; but this is undeterminate — In the 4th or 5th month the Foetus begins to move.

Of the Diseases of Pregnant Women

Boerhaave was the firſt that considered theſe

18) Disorders in a proper light — In the early Months, particularly in the morning, there are generally vomitings, loſs of appetite, nausea, fainting, palpitations, vertigo, ~~pain~~ Pains in the head, breast, ſtomach & teeth, ſhortneſs of Breath, cough, laſsitude, Diarrhoea, Colic, &c, all which ſeem to depend on the general Stimulus & ſtoppage of the Menses, causing Irritability in the Uterus & the whole System. Moſt off the above Symptoms go off about the 7th Month & ſometimes later, & are ſucceeded by the following, viz, a frequent Desire of making Water, diffiiculty in going to ſtool, various Hemorrhoids, ſwelled Legs, thighs, & labiæ pudendæ, flooding, convulsions, prolapses, &, in a distorted Pelvis, the desire of making Water, is particularly urgent, as the head of the Child muſt remain for ſome time at the brim of the Pelvis, & will there compreſs the fundus of the Bladder; but in well formed Women it will be otherwise, by reason of the preſsure on the Collum Uteri — In common ſuppreſsion from the Collum, the

Pulſe is not affected; but in that proceeding from a reflection of the Uterus backwards, or an inflammation of the Bladder itſelf the Pulse beats at a prodigious rate — in this Caſe, V.S, Enemata, Cupping & the Catheter are neceſsary — In reflections of the above mentioned, which is to be ſuſpected when the preceding Remedies have proved fruitleſs, introduce a finger into the Vagina, & you will then be ſensible of the cause — The way to redreſs it will be to introduce a hand into the hollow of the Os Sacrum, & elevate the Uterus into its former ſituation. — When the Ovum gets into the Uterus, it adheres to it & distends it~~a~~ a regurgitation & plethora ensues — the distended Uterus preſses on the Viscera & adjacent Nerves; the Stomach ſuffers, & by Sympathy, a propensity to Vomit is brought on. — In a plethora excited as above, V.S. is neceſsary, except in relaxed habits; after which Laxatives, as Elect. Lenit. c̄ Ol. Amygd. to prevent griping — Vomiting in the morning is usual; if it continues after bleeding,

20) Clysters, Laxatives, & Antiemetics of the mild kind are good; but in general it is beſt to let Medicines alone — all drastic Purges are highly improper, as they often occasion Miscarriages — Sudorifics are ſeldom prescribed — Emetics ſhould be given very cautiously; tho' the Dr. mentioned where 4 or 5 Grains of Ipecac. were given ſeveral mornings, with ſucceſs, juſt before the vomiting came on. Weakly women he has known relieved by a moderate quantity of Wine, & that when other things failed — likewise change of Air is very serviceable — A cough is very difficult to remove — when violent, V.S. is proper — gen: the Expectorants, ſoft attenuating Medicine with Opiates to procure ſleep, & obtund Acrimony, which irritates the Lungs, Bronchia &c.

Of Suppreſsion & Incontinence of Urine

The former is occaſioned by preſsure on the neck of the Bladder; the latter by preſsure on the fundus — the ſuppreſsion ſhould not be ſuffered to remain longer than two days

days

Days without drawing off the water by the Catheter; because the elevation of the Bladder above the Uterus will be troublesome. - Incontinence of Urine from a pendulous Belly is often removed by a Bandage round the Abdomen, & a recumbent Posture. - The ſwelling of the Thighs, labia, &c. chiefly happen to weakly constitutions; hence gentle Exerciſe & confinement to bed for a few days with gentle laxatives are prescribed in general. Women of a robust habit under these Circumſtances muſt be differently treated - V.S., gentle laxatives, ſcarifications on the tumid parts are ſometimes needful - if attended with a Diarrhoea or Dropsy, treat them accordingly - if they happen to be poor Women, who use much Exercise, lying in bed will often affect a cure - When the Hemorrhoids are much ſwelled & painful, V.S. with gentle laxatives may ſuffice, keeping the Patient in a recumbent Posture - if they are ſoft, they may be punctured - if hard drawn by leeches - but if either are used, the Surgeon ſhould be present; for if the bleeding continues ye. women gets frightened, & ſuſpects a flooding, which terrifies them ſo, as to occasion a Miscarriage – neither of these ſhould be used without an absolute Neceſsity – Many women practice V.S. in the early Months – in plethoric habits it may be proper; but in weak relaxed habits, ſuch as have had many Children, be very cautious how you bleed – The Dr. gave us the case of a Lady of a very delicate habit, who used V.S. twice, contrary to his Advice & miscarried – He ſays he never knew a flooding in the first 5 Months prove fatal, when totally ſubmitted to Nature, & the fœtus not extracted. – Women that have miscarried thro' relaxation may be indulged with a cold Bath in the third or 4th. Month, eſpecially if they have been accustomed to it before. – This habit of miscarrying may be relieved by change of air, exercise and nourishing Diet – every thing that is violent ſhould be avoided – The Paſsions of the mind ſhould be regulated with great Care, as women ſometimes ſuffer by error therein — Tight lacing is of pernicious Consequence; ſuc as distortion & want of proper growth in the Foetus — Pregnancies often cause Dropsies of the Abdomen & Uterus — Umbilical Herni are occasionally during Gestation by the distension of the Uterus. —

On Abortion

The Causes of Abortion are innumerable — ye principal are floodings, which may arise from blows, falls, or frights; most frequently from a partial ſeperation of the Placenta from the Uterus, especially when it adheres to any part of the Os Tinca — Those proceeding from Blows, immediately ſeperate and may be fatal, if proper care is not taken to make them lie in bed in a horizontal posture, & prescribe ſuch Medicines as produce a gentle contraction of the Vessels — The Doctor mentioned a case of a woman in her 5th Month, who flooded ſo much that he was dubious of her life — he even tho't

(4) thought ſhe was dying; however by giving her plenty of nouriſhing Broths, & support:ing her as much as poſsible, ſhe recovered her ſtrength, & threw off her burden — In weak & inſipid women, inſtead of O.S. which w^d be injurious, Opiates & gentle Astringents ſh^d be given — We ſhall find it impoſsible to introduce the hand in the 5th Month without the greatest violence — If the Os Tincæ be open enough to admit the hand, the Foetus will be thrown off ~~by~~ Nature. The Ovum in 4th or 5th Month, acts on the Os Tincæ to dilate it, hence it is easy to conceive how difficult it is to dilate it by a body of ſo small a weight — however its ſoftneſs in one respect is rather ad:vantageous, & it is by that means the O:vum is enabled to ſlide thro' ye Os Tincæ.

Floodings are reduced to three Claſses — 1. when forcible delivery is propoſed, 2^d when there are labour pains, whether they are to be encouraged or not, & 3^d whether the

Birth ſhould not not be ſuffered to go on — the greateſt point is to conſider the ~~ſi~~ ~~tuation~~ ſtate of the woman, the quantity of blood loſt, & the ſtate of the parts — if the effuſion is rapid, the Os Tincæ is generally open, & we ſhould deliver as ſoon as poſsible — The flooding goes on till the Os Tincæ is much relaxed, the pulse reduced to a fluttering languid ſtate, the countenance pale, fainting, yawnings, &c, & the patient much exhauſted it becomes a melancholy caſe — it is impoſsible to determine the preciſe time when delivery would be proper, yet we need not heſitate when the Symptoms of reduction are preſent, & the Os Tincæ dilated ſo much as to admit the hand without much violence — this is the only caution by which our proceedings can be regulated; for if ye woman has bled ſo as to cauſe convulſions, the Caſe is generally mortal — hence we find convulſions from inanition always precede Death — Bringing down the feet in convulſion caſes is preferable to opening the head, being more ſimple and eligible when practicable — but when too low for turning, & not low enough for the forceps, then opening the head is the only resource. —

Floodings are more common in the early Months of pregnancy, which frequently cause Abortion, but are ſeldom fatal; while thoſe in the latter Months are generally attended with a profuſe loſs of Blood, & ſcarce admit of relief, eſpecially if the parts are ſo rigid as not to admit of delivery by Art, conſequently the Patient muſt die — Stimulating Medicines in floodings to prevent Abortion, are injurious, being very apt to render the Hæmorrhage greater — in general Medicines to ſtop floodings are uſeleſs. — The Doctor ſays you muſt carefully avoid all violent astringent Medicines, & during the use of the moſt moderate, the bowells muſt be kept open. Tinct. Rosar. with an Opiate when the pulse is not quick, & obſerving the horizontal poſture will generally be enough — He has-likewise used the Bark with ſucceſs — the whole Claſs may be often applied without any considerable benefit. — However it is neceſsary to make a ſhew of aſsiduity to amuse the patient — if floodings are produced by a fever then Astringents are particularly ~~neceſsary~~ proper, but in this case a cautious pursuit of the Antiphlogistic Regimen may succeed — V.S. only is usefull in ſlight floodings — If the floodings have continued for some time & are profuse, the patient generally pays her Debt to Nature, tho' perhaps delivered. — When floodings are not profuse, but begin to increase, & the labour pains come on regularly, whereby the Os Tincæ is dilated, & the membranes protruded, it will be proper to break them, which will often ſuppreſs the flooding by allowing the Uterus to contract, by which the delivery will be perfected — In convulsive Cases the Patient is ſensible and quiet during the Intervals — if the fits are

28) long and ſeldom we may wait for the dilatation of the Os Tincæ. — On the contrary, if ſhe foams at the Mouth, & is much oppreſsed in breathing, & becomes perfectly ſtupid, we muſt, if the Os Tincæ is in any degree ſoft, dilate it by introducing the fingers one after another 'till the hand is got in, which muſt be immediately exercised to bring down the feet. — Under these Circumſtances, previous to the Operation, we ſhall make our prognotics to the Spectators to ſecure ourselves from reproach. — If the Patient does not die ſoon after delivery in the above case, ſhe has a great chance to recover — In delivering the Placenta in this case, always ſearch for that part that is seperated from the Uterus, & wh. gives rise to Hæmorrhagies — If we could make any use of external applications, a Sponge dipt in Alum water & introduced into ye Vagina would be most proper. — Floodings in the 4 last Months ſhould be palliated if poſsible, 'till the Woman has arrived to her full time, miscarriages being then of the utmost Consequence. — Mauriceau recommends

Os. & paregorics in these Cases. — In the Lues Venerea, Salivation is best performed from the 4th. to the 7th. Month of pregnancy — If sooner there is a danger of Abortion; if later, we fear the woman will not regain her strength before the labour comes on. —

On natural Labours. —

The Uterus is composed of muscular fibres running in longitudinal & circular Directions — The Ovum in the last month of Pregnancy, presses on the inferior segment, which puts those fibres on the stretch, and from irritation they dilate — the pressure becomes greater, the Os Tincæ dilates, & labour is produced — Why Labour happens at the end of 9 solar months, is not ascertained — The most conclusive signs of labour approaching in the 8th or 9th. Months is a copious discharge of Mucus from the Vagina, resembling the fluor albus — It serves to lubricate the parts & prepares them for dilatation — the next one

30) the presaging pains, which are divided into true & falſe — True pains provoke Stools & urine, alſo the falling of the belly, pains in the loins which run round from the Pubis to the ſacrum — ſickneſs, vomiting, &c — the Uterus contracts forcibly — the Os Tincæ overcome by preſſure & pains, dilates — the Membranes protrude with the waters — when the pains go off, the Membranes retire, and the head is easily felt — the pains become ſtronger & leſs distant; ye mucus comes away tinged with blood; the face becomes florid, ſucceeded by tremors — at this time we are certain labour is approaching — The falſe, or ſpurious are of a colicky nature confined to the belly & loins — It is of the utmoſt conſequence to distinguish between the two — for ſhould we leave the patient, ſaying ye labour was at a distance; I ſay in in ſuch a caſe, our reputation would be juſtly liable to cenſure — ſometimes there is a falſe water evacuated ſome weeks

before Labour — Women that have had many Children are ſubject to after pains, ſince the Uterus by frequent distension becomes leſs able to contract, the contents therefore, viz. Placenta & coagulum remain longer, & are not ſo easily expelled, for want of sufficient force. — Old Women have generally hard labours, owing to the rigidity of the parts — hence it may be inferred that labours in those Women may be suffered to go ſome days without having recourse to art, which muſt be avoided as much as poſsible — Perhaps in young Women whose deliveries are laborious, the bones of the Pubis may recede from each other — the timorous muſt be ſoothed & the hump-backed kept in a chair, as they breath with difficulty in a horizontal posture — All weak delicate Women are ſubject to floodings, therefore ſhould be delivered naked in bed, with proper clothes under them, to avoid any disturbance in undreſsing them — a dead Child will come away as soon as a live one, if the head be ſound &

32) Putrid ~~women~~ Children ſeldom come away easy, & the Mother is generally attacked with a putrid fever afterwards — For the management of natural labours, Smellie's directions are ſufficient in regard to their different postures — The leſs we do in natural labours the better — it is only neceſsary to support the Perineum, & prevent the too precipitate expulsion of the head — The more natural the labour is, the more considerable will be the tumour in Perineo — ſometimes one or both arms will come down with the head; this will be n impediment to delivery if the woman is we formed — When the Funis umbilicalis is round the Neck, it is ſaid to retard delivery; but if the convolution is once or twice round, it is always longer in proportion — ſome recommend in this case to introduce two fingers into the anus to make a preſsure on the upper edge of the orbits of the Child's eyes — by this means the head is prevented from returning back — this they

ſary is to be continued till the Child's head is entirely out — for as the Uterus contracts the Placenta falls down nearer the Os Tincæ. — Smellie recommends this practice, but does not consider that this will probably bring on an inflammation of the Rectum. When the Os Tincæ makes any resistance, he recommends ſcooping; but ye Dr. disapproves of this. — The beſt way in ſuch a caſe is to adminiſter a Glyster, to give ſome warm Cordial & procure reſt. — the ſeldomer we examine the better — much ſcooping only tends to thicken the Os Tincæ — In the time of labour we ſhould forbear the use of ſtimulating Medicines, keeping the Woman as much as poſsible in a tranquil ſtate — In the beginning of Labour a Glyster will be of ſervice, unleſs the parts are opened & the Child bears down in the Vagina — The Membranes by retaining the Waters prevent the contraction of the Uterus, & retard delivery; therefore when the Os Tincæ is open, & the Membranes protrude, & continue ſo for an hour or two,

34) during pains, we may venture to break them by pinching or ſtretching – but this ſhould not be done till the Membranes protrude to the external Mouth of the Vagina – The Patient expects to be delivered ſoon after the Waters break, but this is not always the case – When the head comes within the Pelvis, then the preſsure on the Os Tincæ is great, which by its ſtimulus gradually dilates it. – The head first comes down in the Axis of the Uterus & Pelvis, but when taken in the paſsage it is in the Axis of the Vagina – The beſt way to support the Perinæum, is with the left hand formed into a cup-like Receptacle, & placed between the Os Coccygis & Vulva – y^{n} you counteract the preſsure of the Child's head, & prevent its too precipitate expulsion – If the Perinæum ſhould be lacerated ¾ of an inch, it may be cured by rest, & keeping the legs close together – If the patient complains of a pain in making Water, the nurse may tell her it is owing to what

ſhe pleases to keep her in ignorance of the real Cause — the ſmarting will continue 'till the wound is healed — If the Sphincter Vaginæ & Anus are divided, the Fæces & Urine will be discharged involuntarily, & the parts become at length incurable & fistulous — But if the Sphincter Vaginæ be only torn, or with only part of the Perinæum, very bad consequences will follow — after the Child is born, we muſt tie the Funis two or three inches from the Navel, making another Ligature about an inch above, & cut between; but we ſho: be careful how we tie it, as it is a gelatinous ſubstance — If the Child does not breath, rub its body, ſtimulate its posteriors, let the Funis bleed a little, & endeavour to inflate the Lungs by blowing into its mouth, & ſtopping its nostrils — In all natural labours we ſhould examine the Abdomen after delivery, before we extract the Placenta; for ſhould there be two Placentas, or twins, they might be ſo united, as that pulling at one might seperate both — the consequence would be a violent flooding, which would endanger both Mother & Child — but if the Uterus ſhould contract like a hard Ball, & descend to the Pubis, we may be certain there is not another Child, and in ¼ of an hour if ſhe has pains, we may extract the Placenta by gently pulling in all directions by the Funis — but in weak relaxed Women with pendulous Bellies, we ſhould wait ſome time after the expulsion of the Child, for ſh.d we, without attending to the ſtate of the Uterus, by forcibly entering ſeperate the Placenta, the gaping ſinuſes would pour forth a torrent of blood, & perhaps a fatal Syncope ensue —— when the funis is inserted into the middle of the Placenta, & force is made use of to ſeperate it, the hæmorrhage is much greater than when inserted near the edge. — If the Woman looses any quantity of blood, pulling at the funis must not be perſisted in, for at ſuch time the Uterus is ſo relaxed by flooding that it may be inverted if the force is continued; therefore under ſuch circumſtances the hand is to be introduced & the placenta carefully seperated. In examining for the ſecond Child, the finger ſhould not be introduced more than once, leaſt the Os Tinca be ſtimulated to contract— Women-midwives frequently occasion this, as they are fond of examining — If we are called in these Cases, & find much resistance, we ſhould not attempt to deliver by forcing open the Os Tinca, for there are instances of its being in the Uterus ſeven days or more & then expelled without danger — a ſlow progreſsion of the hand in extracting the Placenta is ſafest — you are first to find the Root of the funis, then bring down to the inferior edge of the Placenta & Membranes which may be easily distinguished from the Uterus, which feels like a hand-ball in comparison to the other, & by introducing one finger after another between the Uterus & Placenta, and moving them gently round, you may bring away the Placenta very easily, by pulling the funis with the other hand— —if on examination afterwards, we ſhould discover a hard tumour ascending up to the Navel or higher, so as to make us suspect another Child, a finger may be introduced — if we find another Bag of Waters, our ſuſpicions are juſt; if not, & we cannot have ~~the~~ ſatiſfaction by the finger, the hand muſt be cautiously introduced which will clear the doubt —

When there is a ſecond Child, if it preſents itself right, & the Woman is not fatigued too much, Nature will expell it as well as the former; but if the friends are very importunate to have it delivered, & the head is not too low down, we may go up for the feet & turn it; for if the Labour ſhould proceed, & any Accident happen to the Mother or Child, it would be imputed to delay — We ſhould be cautious in pronouncing another Child, for the Placenta feeling like a bag of Water may deceive us — Besides keeping ye Goſsips in ſuſpence, the Woman is ſuffered to go on quietly, ſo that the 2d. Child may be born before they are aware of it — the Placenta is not ſeperated at its edges firſt, as Smellie imagined, for in that case flooding would be more frequent — It always begins in the center — ye quantity of Blood discharged & the contraction of the Uterus aſsist in detaching & expelling it — If it is long detained & difficult to be extracted, it generally proceeds from the adheſion of its edges to the Chorion, wht. at this place of Union is very thick & ſtrong

On the uſe of Instruments. —

Laborious Cases may be distinguiſhed into ſeveral Claſses; as any thing wht. may impede the natural Labour, may occasion the Child to remain a long time in the Paſsage without making any progreſs towards delivery — Smellie here recommends the Forceps, but they ſhould never be applied till the head is low down in the Pelvis, ſo low, that you can feel one ear under the Pubis — He has greatly improved the Forceps by ſhortening & covering them — Grief or any irregularity of the Paſsions by affecting the Patient in the time of labour, may suppreſs the natural pains entirely — the rigidity of the Os Externum, & Internum may alſo be a cauſe — Here Smellie recommends endeavouring to force a paſsage for the hand; but the Dr. thinks inſtead of its anſwering our purpoſe, it rather increaſes the rigidity; & therefore we ſhould endeavour to gain the confidence of our Patient by telling them the labour is not yet come on, & that you will order ſomething for them, which may be of ſervice — thus quieting them till they have procured reſt, & probably on your Return you will find the parts much ſoftened, & the Os Tincæ dilated. — After gaining ſo much time, you may generally pronounce it a free labour, & that the Patient will be happily delivered. —

Face presentations are reckoned another cauſe of difficult labours; but if the Woman is well formed, ſhe will be delivered by the natural pains, only proportionally more time will be required. — Much harm is done by a too early application of the Forceps, tho' Smellie ſays not. — The narrow Pelvis is another cauſe; but even here, it is inconceivable how Nature will aſsist by letting her alone, & giving her time, even 4 or 5 days in bringing down the head. — When the Vertex presents & the woman not distorted, by allowing proper time, it generally comes down itself — But if fits, faintings, ſweats, languid pulse, &c. appear, we muſt aſsist with the Forceps if poſsible — A premature also too great Oſsification of yᵉ Child's head is also very bad, as it prevents the bones fm yeilding when pressed on by the Pelvis — an Hydrocephalus may also occasion a difficult Labour — We must never attempt to deliver till we know the precise situation of the head, & untill the parts are sufficiently dilated — before we introduce the hand it should be anointed with Pomatum — In order to discriminate the situation of the Foetus, feel for the Vertex, sagittal, lambdoidal sutures, fontinel, ear, nape of the neck, &c — If you find ye Pelvis not compleatly filled, or that it is filled, or that it is filled more on one side than the other, & that the Child has not made its mechanical turn, you may easily discover one ear to the Pubis, the other to the Sacrum, & the Vertex on that side of the Pelvis which is most filled — The situation of the Vertex should always be known, in order to turn the Child right — If on introducing the finger in the imaginary axis of the Pelvis, you feel the Vertebra of the

Sacrum projecting, we may conclude the Pelvis is so narrow, as to require the use of the Inſtruments — To apply the Forceps with ſafety, they muſt be ſlowly introduced along the Operator's hand, which must be previously introduced beyond the Child's ear, ſo as to have a firm hold, first introducing one blade, then the other. — In locking them great care ſhould be taken neither to include Hair, Nymphæ, Labia, &c. which would give moſt exceſsive pain, & ~~th~~ lacerate the part — In applying them we ſhould carefully consider in our own Minds, which blade belongs to either ſide, & place them in ſuch a manner, as not to mistake them — If they are applied before we feel the ear, we run a great risk in injuring the Child or Mother — In a narrow Pelvis, or large head, we muſt turn with the forceps, as it will render the extraction more easy. In a Pelvis but an inch & an half from Pubis to Sacrum, it is impoſsible that the woman ſh.d be delivered by natural pains; therefore when the head is large we muſt not turn the Child, as there will be a much greater difficulty in delivering the head after than before.

When there is the least chance of delivering the Child alive, we ſhould be cautious of opening the head, without giving the Forceps a trial tho' they muſt never be used with much force, as by that means you endanger the Mother. — The concave ſide muſt be always applied towards the Pubis, as the convex will always answer the ſweep of the Sacrum.

Cases on the Machine. —

The Vertex presenting low down, with the face to the hollow of the Sacrum. —

Here ſuppoſe the Woman is ſo circumſtanced that the Child cannot be extracted naturally — The Patient being laid on her Back with proper aſsiſtance ſupporting her Knees, apply the Forceps as before directed to the Woman's left Iſchium, the other to the right, keeping the handles back to the Perinæum.

After the Forceps are ſecured & the pains come on, move them from ſide to ſide inclining them a little upwards — We muſt not be too hasty in extracting that which Nature wd. have taken ſometime in bringing forth — if the head is so low down as not to get in the forceps, apply the Thumb on the Vertex, & finger on the Os frontis; then move the head from Pubis to Sacrum, & you will thus acquire ſufficient room for the admiſsion of the Forceps in this case without puſhing up the head, which if not jammed, it will easily do — In all Deliveries, particular care ought to be taken to ſupport the Perinæum when the head is coming forth eſpecially if the woman be aged & it is her firſt Child. — When the Vertex is disengaged, incline the handles a little upwards or to the Pubis in order to bring the head out in the axis of the Vagina under the Pubis.

46) The Vertex presenting with one ear to the Pubis, the other to the Sacrum. —

To know this ſituation we must carefully examine to which ſide the face looks. By feeling, we can in general tell the Position of the ear. — If the ſcalp is not ſwelled, the lapping over of the Parietal Bones may be felt — lastly, if these are not sufficient to ſatisfy you, turn the woman on ~~your~~ her left side, and introduce your hand to the Pubis till you feel the ear; but be careful, as these parts are exceſsively tender. — then introduce one blade of your forceps under the hand; if you meet with any resistance, withdraw & try again — the blade being fixed, introduce the other hand in the hollow of the Sacrum till you find the ear, then apply the other blade as above, lock them & tie the handles that they may not ſlip — then turn the woman on her back again, & get her breech over the ſide of the bed — Now move gently from ſide to ſide, remembering never to move with a too great force, as the inferior part of the os Tincæ will be liable to be greatly hurt by being preſsed against the Pubis; but at the ſame time we muſt remember to give the head its mechanical turn, always endeavouring to get the face to the Sacrum if poſsible — after the head is disengaged, if there is any resistance it is that of the Shoulders at the Pelvis; then we must make a greater turn & reverſe it — having now brought it to the first case, deliver accordingly —

The Fontanel presenting with the face & Vertex to the Sacrum. —

When the Fontanel presents, the face is generally to the Pubis, sometimes diagonally, & but ſeldom to the Sacrum — The Dr. never ſaw but one inſtance of the latter & that was in a twin case, when the head was ſmall & would come in any direction — ſometimes the Fontanel is not exactly in the middle of the paſsage, but near the Pubis; the vertex is then low down & near presenting — We can but ſeldom tell when the Fontanel presents, till ye head is low down,

48) when it is easily discovered. — The Dr never had occasion to turn the Child, when the head presented in the middle of the paſsage, for natural pains generally effect our purpose — But if any Symptoms ſhould occur, requiring immediate delivery, if the Os Tincæ be properly dilated, or may admit of any assistance by gently ſcooping it, then apply the Forceps in a ~~right~~ line with each Ischium and when the Chin is out, raise the handles, ſupporting the Perinæum; at the ſame time bring out the head in the axis of the Vagina; but be ſure not to raise the handles 'till the chin is out; for by not observing these directions you would lacerate the Perinæum, & endanger the Child's jaw. — In all Fontanel cases where the head meets with resistance in coming down in that direction, you may push it up to the brim of the Pelvis, & bring the largest part to the widest of the Pelvis; bring it down with one ear to the Pubis, the other to the Sacrum, and deliver as in the former cases — This may be done, more eſpecially if the head is high up, & any bad Symptoms occur — When the Fontanel

is near the Pubis, the Vertex is then the loweſt, & we are then to endeavour to imitate Nature in the mechanical turn, by bringing the Vertex under the Pubis according to the method of Nature.

Face Cases. -

There are three Face cases; the 1st when the Chin presents to either ſide of the Pelvis. ye 2d when the Chin is towards the Sacrum, & ye 3d when the Chin is towards the Pubis – The best practice is to turn in a face case if poſsible – If you are called in before the Uterus contracts, & if the Labour is advancing, observe the ſame rules as in laborious cases – In general wait patiently before the head is come down into the Pelvis; then if any bad Symptoms appear, apply the Forceps; but if left to Nature, ſhe will generally do the buſineſs. When the Pelvis is narrow, & we are called in time, it is beſt to turn & reduce it to a natural ſtation or presentation – When the face presents, we can ſeldom open the head, to evacuate the Brains. – In all face cases, where turning is not adviſable, the labour ſhould go on as long as it is consistent with the ſafety of the Mother, ſince there is danger in using the crotchet, eſpecially ſo ſoon —

When the Pelvis measures 4 inches or 4½ from Pubis to Sacrum, thô the face ſhould present, the Woman may delivered by natural pains: But if the presentation can be discovered in time, & the Os Tincæ open, it is advisable to break the Membranes, & turn the Child — But is a ſad circumſtance when the Membranes break before the Os Tincæ sufficiently dilates (as is often the case from the irregularity of the head) ſince thereby the labour is considerably retarded — In these cases the Os Tincæ dilates ſlower than usual, and with more pains, therefore ſcooping is by no means to be used — The Dr. related an instance of one of theſe cases, where the Gentleman failed in ſcooping — Smellie was ſent for, who endeavoured to dilate it in the ſame manner, but was disappointed, & the Patient died undelivered. —— Quære. — Whether the Patient would not have recovered, if ſhe had been left wholly to Nature? ——

1st Face Case. —

The face presenting with the Chin to the Pubis. — after the woman is placed properly, either on her back or side, slowly dilate the Os externum with the hand, then extract gently with the Forceps, keeping the handles back as far as possible till you have got the Chin from under the Pubis; then raise them forwards from between the woman's thighs, by which the head will be brought out, in the half turn, as in the natural way. —

2d Face Case. —

The face presenting with the Chin to ye Sacrum.

This happens in a narrow Pelvis & is very difficult — The Woman being laid on her Back, the forceps must be applied — then endeavour to bring down the head, in the direction you find — but if there is great resistance, push up the head & turn it to one side — when the Chin is disengaged from the Ischium, turn underneath the Pubis, & extract as in the preceding case — this the most difficult of all

52) the face Cases, tho' even here Nature will sometimes deliver the child – the mechanical turn muſt be observed in all face cases, but more eſpecially in this. —

3.d Face Case. —

The Chin presenting to either ſide of the Pelvis.

Before we apply the forceps in this Caſe it will be neceſsary to know on which ſide the Vertex lies, for reasons already aſsigned —

The woman is to be laid on her ſide, the parts dilated with the hand, the Blade introduced, & the extraction conducted with the usual precautions — The handles muſt be applied ſo as to prevent their backs from injuring the Sacrum — In all these cases where women are delivered by ~~the~~ natural pains, the labours are much more tedious than in natural presentations. —

On preternatural Labours. —

They are divided into three Claſses — 1. When one or both feet present, the Knees or the Breaſt — 2.d When floodings or any thing renders it neceſsary to turn — 3. When the superior parts present, as the head with the funis before it, the Neck, arms, Shoulders, Belly, Back, &c— In footling cases, where one foot preſents it will be neceſsary to know which it is, by feeling for the great Toe — It is always beſt to bring down both feet if poſsible, but where one only presents, & the other is up along the Child's belly, it may delivered in that manner — In all preternatural labours, when the hips are brought below the os externum, the child's foreparts are to be turned to the back of the Mother; & if you meet with resistance in examining the head, when its largeſt Diameter is to that of the Pelvis, the hand muſt be introduced & the head turned to one ſide — When the Breech presents with the foreparts to those of the Mother, the legs up to the breaſt, the funis not engaged & the Pelvis well formed; in this case we may suffer the Child to come forth in that ſituation, aſsisting with the fore finger fixed in ye Groin — But in a narrow Pelvis, where there is danger of leaving the head behind, the curved forceps muſt be applied; if these fail the crotchet may be used, but by the help of an Aſsistant we may be able to bring forth both together. If the Knees present, we muſt wait patiently, till the feet come down, & then proceed as in the footling case. — In all Breech-Caſes, ſuppoſing a flooding, or other urgent Symptoms (except the child is very low & its legs up to the belly, with its foreparts to those of ye Mother) it muſt be puſhed up, & brought away by the feet. —

On premature Births. —

Here we ſhall conſider the operative part of all flooding caſes — When the woman has loſt much blood, has a feeble pulſe, a pale, wan countenance, giddineſs, ſlight faintings, yawnings, &c, & the Os Tinca little dilated, no labour pains, but ſtill bleeding, & every method to ſtop it ineffectual we may pronounce the Caſe dangerous: therefore, having acquainted ye friends with it, we ſhould immediately proceed to delivery, which is now highly neceſsary — On the contrary, if pains in the Loins ſhould come on, & ſhd gradually increaſe, & if the woman is not looſing blood, we may suffer the Labour to be left to Nature — When the Os Tincæ is ſo dilated as to give resistance to the introduction of the hand it ſhews the woman has loſt too much blood, by which her ſtrength is greatly impaired, & her habit ſo relaxed, that delivery would rather hasten her Death — Here it behoves us to consider, if the woman is delivered, & dies under the operation, whether the Surgeon is liable to Censure. — It is a happy circumſtance if we are called when the Os Tincæ is ſo dilated as to admit of one or more fingers without much force — always dilate in the moſt gentle manner, by introducing one finger after another, till the whole hand is introduced, and then turning becomes neceſsary & easy — The resistance will be at the Collum Uteri — When the knuckles are at the Os Tincæ, withdraw ym a little, & then work them again & when your hand is easily admitted, & the Os Tincæ sufficiently dilated to let the head paſs, you may then break the Membranes & push up your hand before an evacuation can take place. Feel for the feet & then the Child is easily turned

56) turned & delivered — Remember never to withdraw your hand without bringing down the feet, for when the waters are gone, it will be very difficult to introduce the hand a ſecond time, & ſtill more to get at the feet on account of the contraction of the Uterus. In extracting by the feet we ſhould rest often, move ſlowly, & take 20 or 30 Minutes to deliver; & at the ſame time to preſs as much on the Patient's abdomen, as would be eql. to the Child's weight, that by this means the Uterus might get time to contract, by wh. the flooding will be diminiſhed — During ye whole time, the woman muſt be ſupported by Jelly broths, &c — after delivery ſhe muſt reſt & let Nature evacuate the Placenta, unleſs there be a flooding, in which case we ſhould deliver immediately — Let the grumous blood be alſo brought away if collected in any great quantity — If when the woman has not loſt much blood, & ſeems tolerably ſtrong, we anticipate the natural pains, by a forcible delivery there will be danger of lacerating the Os Tincæ, which generally proves fatal.

In these Cases it is neceſsary to ascertain what quantity of blood has been loſt, & attend to the dilatation of the Os Tincæ, state of the pulse, & ſtrength of the Patient — In moſt flooding cases the placenta adheres to the Os Tincæ — the nearer the woman is to her full time the more danger there is, as the diameter of the Veſsels is proportionally larger & will paſs more blood. — If the Placenta adheres to the Os Tincæ, we ſhould gently introduce one finger after another, & ſeperate it; but if the flooding is ſmall, & the Os Tincæ not dilated, we had better wait till it becomes ſoft, & then dilate it ſoftly — When the placenta is in the Vagina, we muſt go up on one ſide & bring down the feet, always endeavouring to bring down the child before it. — Flooding from falls, blows, &c. are generally instantaneous & very dangerous; therefore in these cases, forcible Delivery is absolutely neceſsary — In case of twins, wait between the firſt & ſecond child, if there is no flooding as nature will generally be ſufficient — If we ~~could~~ can diſtinguish thro' the Membranes that the funis, arm or leg, &c, present, we muſt rupture them, & proceed as already directed — In all these Cases it will be prudent to advise the friends of the great danger, that they may call in another Physician if they choose. —

3d Claſs of preternatural Labours

We ſhall here consider the different preſentations of the back, belly, ſhoulders, &c with the head to one ſide of the pelvis & the feet to the other — all these require turning — When the waters have been gone a long time, & the Uterus contracted like a ſheath round the body of the child, it is then called a Sheath case — When the face, or back parts present, they are more difficult to turn than the breech case, as the child lies acroſs the Uterus with the head turned upon the Shoulders, it is more difficult to reach the feet — The body in these Cases is beyond the ~~touch~~ touch. Sometimes ~~in these cases~~ the method of turning in these cases is as follows — after laying the Woman on her back, introduce the right hand – if the head is on the right side, if on the left side, the left hand, passing it up if there is room along the Sacrum on the belly of the Child, till you get the legs & thighs, then gradually bring down the feet. – The Belly presenting with the head & feet reflected backwards, the head being on the right side, and the feet turned to yr. head – you must gradually introduce the right hand & go up for the feet – the greatest resistance will be at the Collum Uteri, which must be gently dilated; for if we proceed rashly, our hand will be cramped before the operation is performed; therefore when the hand begins to tire, it will be proper to desist, & by repeated efforts the resistance will be overcome, for the fundus yields much easier than the Collum – at the time you are bringing down the feet, with the other hand push up the body, & the feet will come much easier – after they are without the Os externum, if you meet with any resistance, fix a noose garter round the Ancles, taking care not to include ye. Lai Nymphæ, &c of the Mother; then introduce the

the left hand pushing up the left & with the right pull down the Garter, which will reduce the Child to a longitudinal direction, or common footling case — Observe when the foreparts of the Child of the back of the Mother, to make a quarter turn & reverse it — Great difficulty is found in going for ye feet. The woman *may* be placed on her knees, wch. will greatly relax the abdominal Muscles, but then ſhe will be more liable to get from you — In these cases where there is a difficulty of introducing the hand, proceeding from a ſpaſmodic constriction, or rigidity of the Os Tincæ & collum, Clysters will be of ſervice — The French Surgeons when ye Uterus makes any great resistance, order us to go up for the hams, & hook down the legs one after another — this method, the Dr. ſays, has been attended with ſucceſs sometimes, but going up for the feet dilates the fundus, & renders turning more easy, therefore it is more eligible & the beſt practice. —

The right arm presenting with ye head to the Mothers right Ilium, the thigh to the left side, & the feet reflected backwards to the fundus Uteri; the waters sometimes gone, & the Uterus firmly contracting on the Foetus; In this case Smellie advises cutting off ye Arm which ſhould never be done except it is very much ſwelled, & hinders the introduction of the hand, or is become quite putrid — the beſt practice even then will be to take off the Arm at the Articulation — In attempting to turn the Child, always, if poſsible go along up ye Belly for the feet, as this beſt answers the mechanism of of the Joints; & if the feet ſhould be brought down backwards, the noose garter ſhould be fixed as ſoon as poſsible to prevent fracturing or distorting the thigh — Tho' it is generally a rule to go up along the belly of the Child, yet when the Breasts present, & the feet are reflected back, we muſt go up under the Child — Smellie's method of pushing up the head towards the fundus in a transverse position, as it requires force, is not to be attended to. —

On Twins. -

It is a general rule, when you have

delivered a Woman of one Child, before you bring away the placenta, to examine the Abdomen, which ſometimes feels ſoft, at other times hard like a foot-ball above the Pubis — if it feels hard & is extended above the Navel, we may conclude there is another Child — In twin cases the Child that first presents, is in proper position, & is delivered by the natural pains, but the ſecond presents wrong & requires turning — If after waiting 20 or 30 minutes no pains come on, we ſhd. proceed to turn; but it will be neceſsary for an Aſsistant to preſs on the Abdomen, least the Woman ſhould faint — In general, twin cases cannot be distinguished by feeling the Abdomen. If you ſuſpect another Child, introduce a finger up the Vagina — When they have enjoyed but a bad ſtate of health for some time before, as ſwelled legs, thighs, &c they ſeldom recover after Twins — If in an hour, or half an hour the pains come on, & the Child comes low down in the Pelvis, break ye Membranes & ſtimulate the Os Tincæ by which means it will ſoon be dilated; but never break them till they are even wh the Os externum; for if they are broke (as Mauriceau directs) immediately after the first Child, the labour will be greatly protracted; if no alarming Symptoms happen, the woman may recruit — Sometimes the ſecond Child immediately follows the first & is ſpeedily disengaged in the Pelvis; in this case the resistance will be ſo great, that turning will be impoſsible.

On the narrow Pelvis. —

When a Pelvis measures leſs than 3 inches from Pubis to Sacrum, it is impoſsible for the Child to be delivered by the natural pains, & in this case inſtruments become absolutely neceſsary — However labour ſhould always go on till the head is engaged within the brim of the Pelvis, or the Uterus is ſo contracted, as to hinder its receding — If the pains are violent, they ſhould not be ſuffered to continue ſo long as if they were weak, for the preſsure of the head being very great may induce an inflammation & mortification of the parts. —

Before you begin to operate you muſt

distinguish the presentation & reduce it if poſsible to the Vertex case — The Dr. gave us an inſtance of a pelvis no more than an inch from Pubis to Sacrum; yet after the head was opened the bones lapped over, & the ~~head~~ child was delivered by the natural pains — It will never ~~apply~~ be prudent to turn in a narrow pelvis, or apply the forceps, till the head is within the brim of the Pelvis — La Motte's Sciſsars, when of a ſufficient length, are ye. beſt for opening the head — ye. operation is as follows — Introduce the left hand into the Paſsage, & conduct the point along the palm of the hand to the head, taking care ye. point does not ſlip between the Cranium & the hand: then cautiously drill a hole in the Cranium, & push in the Sciſsars as far as ye. Shoulders; withdraw the hand, & open the Sciſsars wide, then make a counter opening afterwards, & withdraw them — If the brains do not come out freely, ſcoop them out with a Spoon or the hand; then wait an hour or two for the pains, which when come will aſsiſt greatly — Remember to keep the ſcalp wrapped over the bones that they may not hurt the Vagina — If no pains come on the hand muſt be introduced to lay hold on the Skull to extract the Child — If the hand is not ſufficient the crooked forceps may be used, as they will leſsen the ſize of the head, & can be used with more force; they generally ſucceed, if not the Crotchet muſt be used — In applying the ~~[illegible]~~ curv=ed Crotchet the hand muſt be puſhed up in the hollow of the ſacrum, & the Crotchet directed thereon thereon, & fixed juſt upon the maſtoid proceſs, which is the moſt convenient place — If the Crotchet is to the left ſide, the left hand muſt be introduced to conduct it, & vice versa — after the Crotchet is fixed, apply two fingers of the other hand in the Child's mouth, with the thumb under the Chin, endeavouring to extract by gently moving from ſide to ſide, & to be very cautious it does not ſlip, as the Uterus would ſuſtain great injury thereby — If the part to which it is fixed ſhould give way, apply it to another — Sometimes the hand can't be introduced to guide the Crotchet, as in face cases, here more caution is neceſsary in fixing it — In working with the Crotchet, let the action be only in the wriſt & the force gentle — When ye Body is delivered & the head left behind, & too high for the Forceps, we are, as in all other ſimilar cases to leave it to nature — If the pains are inſuffici:ent, recourse muſt be had to the Crotchet. When the head is large & the pelvis narrow, it muſt be opened, & if it rolls about in the pelvis, an aſsiſtant muſt preſs the Ab:domen to keep it ſteady — When ye patient is exhausted by floodings, faintings, &c, we muſt extract as ſoon as poſsible — The Doctor mentioned ſeveral Cases of the head's being left behind: after various attempts to extract ym, when left to time were expelled by natural pains, which he imagines was owing to the warmth of the Uterus relaxing the head — The head may be extracted in the following manner by one blade of the Crotchet — The woman being laid on her back, introduce the left hand ſo high as to reach the Vertex;

then paſs the Crotchet with the concave ſide to yᵉ Sacrum between the head and yᵉ head, & fix it in the Vertex, & introduce two fingers into the mouth, preſsing the thumb on the lower Jaw – then pull gently & you will probably ſucceed – If the Jaw ſhould give way, the other blade may be applied, & locked like the Forceps – An Aſsistant ſhould always preſs on the Abdomen during yᵉ operation. Before we apply the Crotchet, we ought always to open the head; & remember in opening the head to take away the pieces of bones leaſt yᵉ edges ſhould collapſe & form the ſame obſtacle as before – We muſt not act too prematurely, or to defer too long – This is the grand eſsential point in the management of distorted women – unleſs the bones of the pelvis confine the head, i.e. the head firmly engaged, inſtruments are of no use – If the affair is suffered to go on too long, the parts may mortify & the patient too much ſpent to recover, hence imminent danger – The Doctor related the case of a narrow Pelvis where two Surgeons of distinction always

68) opened the head without delay; he was called in, & by [illegible] letting the labour go on for 5 hours, ſhe was delivered of a living Child by the natural pains — ſhe has ſince been delivered ſeveral times of living Children, but her labours are very tedious, & grow more ſo as ſhe grows older — when ye yellow or rather bloody is coming off, the natural pains quite abſent; the pulse quick & weak and other symptoms of debility, then the use of inſtruments is very advisable — In the beginning of labour, it is impoſsible to extract the Child without lacerating the Uterus; for if the Operation was equally practicable in the early periods of labour, it ſhould not be protracted a moment, but this is not the Case. — If we find a difficulty of extracting the head before its is ſeperated from ye body, the affair might be left to nature, only hooking the Shoulder, & fixing a finger or two in the Mouth, pulling gently, but not increasing the force — The Sciſsars or Crotchet ſhould never be used till the head is ſufficiently low in the pelvis to be firmly fixed,

or till it is low enough to feel the ear towards the Sacrum — If we are called to a caſe where the head is left behind & above the brim of the pelvis, don't attempt to extract till the base is engaged, & in yᵉ mean time ſupport yᵉ woman with proper cordials, &c —

Smellie in this Case was for opening the head & delivering immediately with the Crotchet, but it is impoſsible when it is high up & not fixed. —

On the treatment of lying-in Women.

Before entering on this Subject, the Doctor mentioned the Cæsarian Operation, but as he had never performed it, or ſaw it performed, he referred us to Heister's Surgery for an accurate account of it. —

A Prolapſus Uteri is often occaſioned by quitting the bed too ſoon after delivery, before the broad Ligaments have received their proper tone — Rest & keeping the body open are ſerviceable — Prolapſus Uterorum are very difficult to reduce, & using force, in old Constitutions eſpecially, is generally productive of bad consequences – It is beſt for to leave them alone for a while & wait for a more favourable Opportunity – If there is an inflammation we muſt diſperse it before we attempt its reduction – The women will often reduce it much better than we can, however we may palliate it by means of ye. T Bandage & ſponge. – when it is reduced we may introduce a Peſsary to prevent its falling down again into the Vagina – The wooden peſsary will do very well, & may be retained in ye. Vagina for several years – Those mad of Cork are not ſo good, as they are ſpongy – The French Peſsary is well contrived – in applying it, care ſhould be taken to keep the fore ſtraps low, that the ſhaft may not hurt against the bulbous part of the Urethra. We ſhould try a ſmall peſsary, as it gives the least pain – If we meet with much Resistance in introducing it, we muſt by altering the Woman's position (raising the back for instance) try to render the paſsage more open, likewise the drawing up the breath will make the introduction easier – The Peſsary is to be introduced according to the direction of the axis vaginæ with one edge towards the Pelvis & the other to the Perinæum, firſt obſerving to lubricate it well with Pomatum. — If it ſhould be very painful, it may be withdrawn, & a leſser one ſubſtituted, or perhaps the Sponge peſsary in moſt caſes may ſuffice — it is certainly preferable to any yet contrived, & if once introduced into the Os externum, never creates any uneaſineſs. — It ſhould always be introduced gradually, leſt you bring on inflammation — aſtringent fomentations are here ſerviceable —

Of flooding after Delivery. —

There is always a greater or leſs evacuation after delivery; this if moderate, is ſerviceable to plethoric Women, but when ſo copious as to ſink the pulse, produces Syncope &c — The common quantity loſt will be from 8 to 10 ounces or 14, more or leſs. — When the Uterus contracts about the Pubis like a hard ball, there is little danger of flooding, unleſs the Placenta is torn away — Flooding after delivery is produced from hard labour, violent ſeperation of the Placenta, from extraneous Bodies in the Uterus, & from a Plethora & debility — In both these laſt cases we ſhould never hurry away the Placenta — In laborious Cases, there is about lbi or lbiſs of blood loſt — a proper ~~method~~ management of the Placenta commonly prevents floodings wh: ſhould be extracted gradually — More Miſchief happens from ye mismanagement of the Placenta than from delivery of the Child — Floodings from Debility are moſt dangerous, as the blood generally flows pleno rivo — here it would be very improper to introduce ye hand & ſeperate it from the fundus Uteri — we ſhould rather ſupply ye Woman with broths, gellies, &c & after waiting an hour or two for the contraction of the Uterus, it may be brought away with ſafety — Extraneous Bodies, ſuch as part of the Placenta, coagulated Blood, &c. will, if ſuffered to remain, be expelled by the natural pains — the hand muſt not be introduced unleſs there is a dangerous flooding — Profuse floodings without any preceding violence are very dangerous — Ligatures on the Joints, clothes wet with oxycrate applied to the Loins, parts of Generation & temples, Sponge dipped in any styptic Tincture & thrust up the Vagina, Spices in large doses, keeping the Legs close together, rest in an horizontal posture — these may be tried, but we are not to expect any great things from their use, for floodings will not cease 'till the Uterus contracts, & closes the sinus. The Dr has repeatedly tried the whole Class of Astringents & never found any benefit from them — The Lochia continue flowing for three or four days — they are of a red colour, afterwards serous, which the women call green water — In luxurious women this discharge will continue 2 or 3 Months — An inversion of the Uterus generally happens when too great force has been used in extracting the Foetus or Placenta & for the most part proves fatal — if sent for in time we must endeavour to replace it, taking care yt no pt. of ye fundus is engaged with the Os Tincæ — Very delicate women should be delivered in bed naked, that the wet cloaths may be easily removed. —

On after-pains. —

Lying in women immediately after Delivery are ſeized with pains occasioned by the fatigue undergone, or lacerated pts, or proceeding from coagulated blood, or the Secundines remaining in the Womb – These pains are most ſevere in women that have had many children – The Nurses generally give for these pains Nutmeg & Sugar – The French prescribe Syr. capill., Venice oil, which ſome Women prefer to the Sperm. cet. draught; & if ye pains are violent, a few drops of L.L. provided ye Patient is not hot, costive, or feverish & it is the first Child – Formerly it was customary to ſwathe the Abdomen, but now the Petticoat with the broad band is thought to be preferable – The afterpains in weak hysterical women often proceed from blood ſqueezed from the Sinus into the Uterus, where it forms Clots which the Uterus expells in 24 hours – If the pains continue more than 24 hours, there is danger; in this Case a bladder of warm water may be applied to the Abdomen, or a

Galbanum Plaister to remove these pains. The Breasts ſhould be covered with flannel or Rabbit Skins, & attempted to be drawn to prevent their being ſore — Woman if not liable to inflammation, may be indulged moderately with wine caudle for the first 3 or 4 days — The pulse is generally quick for 2 or 3 hours after delivery; if longer it presages a lochial fever, which is accompanied with a fixed throbbing pain, & great ſoreneſs of the Abdomen. — These pains are continual & unremitting, & of course easily distinguiſhed from after pains. Too much Care cannot be taken for the first 3 or 4 days, to prevent the patients taking cold — The Causes of lochial fevers are violent affections of the Mind, drinking ſpirituous Liquors, & obstructed perspiration — The Symptoms are a low creeping pulse, ſlow at first, afterwards exceeding quick, with a ſhivering ſucceeded by heat, pain in ye belly breast, ſide, dry ſkin, tenderneſs of the Abdomen ſwelling as ye fever increases & then not able to bear the ſlightest touch — The Uterus is greatly inflamed, which if not removed in 24 hours

76) inevitably carries off the patient — No fever becomes ſo ſoon putrid as this — it often puts on the putrid Diathesis in 68, nay 48 hours after its first invasion — on the 4th day putridity is generally evinced by a thin ſerous discharge from the Uterus, attended with violent pains of the head, arms, thighs, &c succeeded by a black discolouration of the skin, a Delirium, stools, sweats which become colliquative, & about ye 7th day Death enſues — When this fever proceeds from perturbation of the Mind, or irregularity of living, it is generally fatal; but if from taking cold, & the patient of a good Constitution, has but ſlight pains in ye Abdomen, & sides, & great Care is taken from ye beginning of the attack, she has a great chance to recover, especially if the lochia are not suppreſsed, or have not been ſo for many hours — The first 3 or 4 Nights give Spermaceti, Pulv. Contrayerv. & L.L. — keep ye patient well covered, & administer plentiful draughts of diluting Liquors, endeavouring by every means to promote a gentle Diaphoresis — In

ſtrong plethoric habits, V.S. would be proper in the firſt Stage of the Diſorder — In the management of this fever, ſteer cautiouſly between antiphlogiſtics & ſudorifics; as the former if too freely used, as Nitre &c, bring on a colliquative Diarrhoea, & ye latter colliquative Sweats. — If Nitre is used in ye firſt Stage, we ſhould not exceed gr. vi. for a doſe, & if the fever goes on, gradually to diminiſh it with warm Medicines, as P. Myrrha is highly detrimental — if coſtive, a clyſter of warm Water, or Decoct. Hord. may be used — Bladders of warm Water may be applied to ye Pudenda & abdomen — when putridity comes on, ye patient is perfectly eaſy — this alteration is deluſive & is ſoon ſucceeded by Death. — When ye Patient is reduced by frequent Stools, ye Julep. e cret. or Aq. Cinnam. are ye moſt proper remedies, as ſtronger aſtringents cannot be used — The Dr. declares, notwithſtanding his extenſive, he has not been able to aſcertain any certain treatment of this fever — whoever is ſeized with it ye firſt or ſecond day is inevitably loſt; if on the third day, they rarely recover. —

Finis

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Buffon's table of the different Sizes of an Embryo. —

Embryo	1st Month —	1 Inch long
	2d —	2½
	3d —	3½
	4th —	5. —
	5th —	6½
	6th —	8½
	7th —	11.
	8th —	14
	9th —	18. —

Reading Beattys

20. February 1783

Notes taken from Dr. Rush's Lectures in the Winter of 1781,&82. —

Hepatitis. This terminates two ways, either internally or externally — ~~If~~ The Tumour sometimes breaks internally thro' the Diaphragm into the Lungs, ~~a Cholera Morbus~~, & destroys the Patient. When the abſceſs does not point outward, an Emetic will perhaps break it. —

Nephritis. It comes on with fever — Pain in the Kidney — frequent discharge of Urine. numbneſs of the thigh & Leg. Retraction of the Testicle. Tis Idiopath. or Symptomat. — The former seldom occurs, the latter often — Cure. V.S. — Purging. Clysters, Anodines, when the pain is very severe, & the Vomiting (which is a ſymptom of this Disease) comes on. —

Cystitis. Owing very often to Injections, and Cantharides taken internally — Cure. Copious V.S. The neck of the Bladder is ſometimes obstructed. This Disease ſometimes terminates in an Ulcer.

Bleeding is then absolutily neceſsary. Emollients ſhould be used. Flaxseed Tea — Liquorice — The Rectum ſhould be kept clean of Fæces by lenient Purges & Clysters. —

Hysteritis. Comes on with Fever, Heat — tension — Pain in the Hypogastric Region. This Disease ſeldom occurs but after Child Birth, & then tis owing chiefly to the ill-management of the Midwives — Tis deſcribed by Authors under the name of the Puerperile fever — Tis moſt commonly attended with Typhus — ſeldom by Synocha. Cure. Emollients to the region of the Womb. Blisters applied to the ſame place — The Patient muſt be kept clean & cool. — Particular Attention muſt be paid to the State of the Bowels, which ſhould be kept open. Sometimes this Disease is accompanied with a Diarrhœa, which ſhould be very cautiously ſtopt — This Disease is generally ~~owing~~ accompanied with a vomiting. Midwives ſhould trust more to Nature in bringing on Delivery.

— for this reason, this disorder ſeldom happens to patients who have been delivered by Man-Midwives, as they do not irritate the parts, & leave it almoſt entirely to the efforts of Nature in a natural birth.

Rheumatism. — either acute or chronic — the acute accompanied with inflammatory Diathesis — chiefly comes on in the fall & winter. *cure* — copious bleeding — purging — when the limbs do not ſwell blisters may be applied — mild opiates, with gentle ſudorifics the limb bathed with Molasses — — this Diſeaſe aſſumes diff^{t}. ſhapes — 'tis now in the muscles of the back, Lumbago — then in the hip bone, Sciatica — &c — 'tis ſometimes brought on by ſtrains — as y^{e}. back, ankle, &c. — —

The tooth-ach is a rheumatic complaint generally — we firſt consider the preventatives — then the cure. nothing better for the former than keeping the head warm — a flannel night-cap, which covers the ears & jaw is to be used. —

for the latter — Blisters behind the ears — bleeding if inflammatory — purges & anodines — if these all fail, then draw the tooth, tho' this ought not to be done untill the former remedies have been tried. — People who live within the Tropics have good teeth — those in the intermediate space generally bad — — *Chronic* — little or no fever — pain constant — in the cure of this, the most powerful repellents are to be used — the reaction of the System to be excited — a scruple of Nitre with half a scruple of Gum. Guaiac. to be given three times a day. — In old people the warm Bath is to be used, & then the cold. — but in young people the cold Bath may be used at once — stimulating drinks must be given — sassafras tea — a gentle & uniform warmth must be kept up — removing to a warm climate, or using a stove room — but above all a flannel shirt, with flannel Drawers & woolen stockings these must continued a long time, or they will be of little ſervice — mercury may be used with advantage — iſsues. —

Gout. — a very irregular Disease, & aſsumes various ſhapes. — 'Tis a disorder affecting ye whole ſystem — produced either by plethora or debility. — all acid liquours are bad in this disease — ſuch as Port, Claret, Burgundy, Cyder & Punch unleſs it be very ſtrong. — 'tis occasioned by much ſtudy, rich food, ſevere ſtudy, ceasing usual labour, & accustomary avocations — cold applied to the lower extremities — Gout in ſome cases is entirely inflammatory — the paroxysm generally comes on from the evening 'till towards morning — a redneſs & ſwelling of the limbs is favourable. ~~It~~ It is a mistaken notion that the chalky ſubſtance found in the joints ~~in the~~ after the Gout is the immediate cauſe of ye Disease, as it is ~~effect~~ the consequence, not the cause. — 'tis the Lymph coagulated. — The Gout aſsumes the ſhape of all Diseases — ye atonic affects ye extremities — ye misplaced, ye ſtomach, throat, &c. — in the latter claſs, wine, opium, & volatile ſalt may be used. —

The Catarrhalis Vesicæ in old persons often accompanies this ſpecies of yᵉ Gout. — The catarrh. Vesicæ may be mistaken for a Gleet. — The misplaced Gout affects ſometimes the Rectum & produces the Piles. — In the Gout, which is regular, the great Toe, as being farthest from the center of Circulation, is generally first affected. — then the Ankle, &c —— the atonic Gout appears till about 35, or 40 — as then the habit of the body is generally inflammatory; after that, as the Conſtitution becomes wrecked & more feeble, the misplaced & retrocedent Gout takes place, & we ſhall find it in the ſtomach, in yᵉ Hypochondriac disease, &c. — This then will cause great alteration in the Diet — in the early part of life, an abstemious Diet is neceſsary, but in advanced Age, animal food, & Wine become neceſsary — luxurious living will change the atonic to the misplaced, accompanied with Typhus & Synochus — Cure in the intervals. — This will depend alone on Diet & proper Exercise — This Exercise muſt be active, & walking would be preferable to all others. — Exerciſe however will not be ſuffᵗ. unleſs ſuitable Diet is alſo obſerved. — Diet is not to be changed ſuddenly but by degrees. — A milk diet is very good in this diſeaſe — Spirits & all fermented Liquors muſt be avoided — Toast & Water a very good drink — Other Methods may alſo be used, as Bliſters (tho' these with caution) perpetual iſsues, & ſetons. — the Bowels muſt be kept moderately open. — In the Paroxyſm. — if there is a very great inflammatory Diatheſis, bleeding is neceſsary — Stimulant purges muſt be avoided — Bliſters to the pained part; tho' these ſometimes drive the Gout to the Stomach — bathing the Limb in molaſses. — after opening the Bowels ſufficiently an opiate may be given, & the part may be bathed with an Anodyne fomentation. in the other Species of yᵉ Gout — the Syſtem muſt be braced — paſsive exercise — on horse-back — exercise moderate — a vegetable Diet ſhould not be preſcribed after 40 — after that animal Diet may be allowed — aromatics — &c — if it is an irregular Gout, change it to the regular. — this may be done by Blisters, &c — in the retrocedent Gout, cordials remedies are to be used — if the Stomach is affected — use aſſa-fœtida, cordials, Spirits, & opiates — if the Lungs are affected, & an aſthma comes on, opiates & antiſpaſmodics are to be used, with Blisters to yᵉ Neck — Sometimes the head is affected, ~~&~~ with Vertigos, apoplexy, & palsy — here bleed, & use volatiles. — The Gout alſo appears in the form of a Salivation — See on this disease, Dr. Warner, Sydenham, Sir Wm. Temple, Boerhaave, & particularly Dr. Cullen in his practice of Physic. —

Chicken Pox. — This disorder depends on ſpecific contagion — Persons have it but once in their lives — Tis ſometimes mistaken for the Small Pox, but may be diſtinguiſhed from that by the preceding fever's being ſhorter & irregular — the Pock filling much ſooner, *viz* in 24 hours, & they never come to maturation — There is no danger in this disorder — all it requires is a little cooling Purges, &c. ——

Meaſles. — These happen generally in the winter — are always accompanied with in=flammatory Diathesis — *Cure* — bleed freely — give diluting Drinks — if bleeding ſhould not answer the end, apply blisters — In this Disease the cold Regimen is bad — the warm therefore is to be followed — The chief Danger is when the Patient is recovering from the Disease — Purging muſt be entirely avoided — Perſpiration muſt be increased, as this pre=ſerves the Lungs from being affected — In the Innoculation for this Disease, the Tears are generally used. ——

Scarlet Fever. This is distinct Disease, ~~tho'~~ its appearance is often ſymptomatic, as in the Sore Throat, &c — *Cure* — if accompanied with inflammatory

Diathesis, Blood-letting, cooling Physic with cool Air will be necessary — if a putrid Diathesis prevails, the antiseptic Regimen, & ~~the~~ Cure will be necessary. —

Miliary Fever. — This is always symptomatic — proceeds from a too free use of the hot regimen — tis a symptom of the *puerperile* fever in child-bed women — requires ye cool Regimen —

Urticaria & *Pemphigus* — these rarely occur. they are not contagious — the former generally accompanies inflammatory fever — it rises in lumps like the effects of Nettles — if the primary Disorder is inflammatory, a cool Regimen will be necessary — the Pemphigus is a very uncommon Disease. —

Aphtha, *Thrush* — this often occurs — in Children generally — a little Borax & loaf-sugar sprinkled on the Tongue may be of service —

the mouth washed with Molaſses & Water, – a little Magnesia & Rhubarb given internally — In Adults tis generally ſeptic & then it requires the Bark. —

Hæmorrhagia. — This Disorder is either active or paſsive. — the former happens before 40, the latter after — the first accompanied with a good deal of fever, the paſsive leſs. — The active Hæmorrhagy is owing to a plethora of the arterial System, the latter of the venal — The former kind moſt frequent in young persons; as an Hæmorrhagy of ye nose in Children, of the Lungs in persons about 20 – in infancy the blood is determined to the Brain — The paſsive kind which comes on after 40, & is owing to a venous plethora, affects the Veſsels of the Brain, & the Hæmorrhoids, producing Apoplexies & Piles – Cure. Hæmorrhagies are ſometimes ſalutary, & then are not be restrained, unleſs they are in improper places, or flow to exceſs. — In the cure Abſtinence is neceſsary – ye evacuations must be great. The aliment ought to be calculated to give little

Nourishment, tho' the Stomach ought to be kept distended — much liquid aliment bad as it increases the fluidity of the Blood. — Roasted Apples & Potatoes, & aliment of that kind, are to be used — constant & gentle exercise is to be used — Sailing — when the Hæmorrhagy is formed, if an inflammatory Diathesis prevails — bleed copiously — after this give Opium, which acts as a Sedative in diminishing the action of the heart Arteries — cold Air is of great consequence, as it acts as a Styptic — it must be used in a very considerable Degree —

In an Hæmorrhagy of the Uterus, there is nothing better than exposing the external parts to the cold Air — (In a Paraphimosis, the Penis sphacelated, & the head digested off — the Hæmorrhage was so great y^t it was thought necessary to take up the Vessels — the Patient however being suddenly exposed to a current of cold Air, the Hæmorrhage immediately stopped without application being had to the Ligature — this a story of Dr. Rush's) laxative medicines must be used — Glauber Salts very good — Stimulating

lating Purges muſt be avoided — Salts act as a ſedative — a ſcruple of Nitre taken lowers the pulſe conſiderably — vegetable aſtringents — mineral Aſtringents — Lead & its preparations — Sach. Saturn. — Alum — ʒß of it taken two or three times a day — after bleeding & other evacuations, during the Hæmorrhage, Blisters may be applied — the nearer they are applied to the part affected, the better — if the lungs, to the back or ſide, — if the Uterus, the thighs. — During the Hæmorrhage, Reſt of every kind is peculiarly neceſſary. the above, ye cure in genl — now for particular Hæmorrhagies — bleeding at the Noſe. This is of service in the active Hæmorrh., & in the Crisis of fevers, if it does not proceed to an Extreme — Reſt in this kind is abſolutely neceſſary — avoid blowing the Noſe. — ye Patient ought either to ly or ſit — ly on the ſide, & in a cool place — Air muſt be cool — Cold Water muſt be applied to the neck, but not ſnuffed up the Noſe —

if this fails to ſtop the bleeding, wet cloths may be applied to ye Scrotum — The laſt remedy is to ſtuff linen plugs up the Noſe — yse muſt be perfectly dry, & rolled up very tight, & twisted up the Nose. — These may remain for half a day, a whole day, or three, if neceſsity requires. — A Perſon who is ſubject to these Hæmorrhages, shd. live very abſtemiously, & use gentle exercise. If the System is lax, it muſt be braced. — In the paſsive Hæmorrhage, use Laxative Physic.

Hæmorh. of the **Lungs** — ys is a difft. & dangerous Disease — 'tis idiopathic, or ſymptomatic — The 1st. is habitual — the 2d. proceeds from external or internal causes — ~~external~~ external, from wounds, bruiſes, &c — internal, from Catarrh, obſtructed Catamenia, plethora of the Arterial System — This Diſease occurs generally in the early part of Life.

Cure — it often proves fatal — often the foundation of Conſumptions — as ys. Hæmorh. is generally inflammatory, bleeding is neceſsary, & it muſt be repeated if occasion requires — during the Haemorrhage we must bleed & give opiates — impose the strictest silence on our patients, rest too exceeding necessary. — if the Cough can be prevented, it must. — Vegetable acids may given — Rose leaf tea — balm tea, with a little Vinegar — ye vitriolic Acid — Preventitives — low & vegetable Diet — ye above related Methods — Spirituous Liquors of every kind must be forbid — riding on horseback must be ~~prevented~~ forbid, tho sailing may be allowed — all severe exercise must be avoided — patients may ride in a gentle Carriage, but must avoid all stimulants, as speaking loud, singing, running, jumping & lifting Weights — yt is of very bad consequence. But ye most sovereign Remedy is common Salt — yt is infallible from whatever Cause. The Patient may begin with a tea-spoonful of pure Salt, three or four times a day, which may be increased gradually to a table spoonfull — The salt ~~may~~ must be taken raw, & continued for a long time, even to a year. — This Remedy

16)

was diſcovered by an old Woman in Ireland. — As y^t Hæmopt. is generally occaſioned by inflammatory Diatheſis, ye blood is ſizy — the ſalt taken excites thirst, & the water drank dilutes the Blood — a ſalt Herring eat without bread at bed time, cures a cold, — y^s it does by cauſing ~~cold~~ thirst — in the former caſe, perhaps y^e ſalt is thrown into the Blood, & comes in contact with ye bleeding Veſsel — We ſometimes find Salt & water cures Cancerous ſores — faſting ſpittle has an ammoniacal ſalt in it, & therefore it cures ſores. — *Piles* — this is a troubleſome diſorder — 'Tis prevented by laxative gentle medicines — Elect. Lenetiv. — Salts — Manna — Castor Oil — Sulphur ip. is very good — Aloes are very bad in this diſeaſe — a roaſted Apple taken every morning is of ſervice in keeping the Bowels open — 'Tis of great ſervice to acquire an habituality of going to ſtool — in a fit of the Piles, confine the patient — give him Glyſters — if 'tis accompanied with inflammatory Diatheſis, V.S. will be neceſsary — if the piles appear outſide, & large — purge, & open the Veſsels — An

Ointment made of ℥i Plumb. alb. & ℥ij Cert may be applied with advantage — another Ointment made of ye Jimpson Weed will be of great ſervice — ye may also be used with ſucceſs in burns. — if the piles bleed, give cooling physic — opium, alum. — ſome people are ſubject to the piles monthly — Some Constitutions are naturally subject to them, with a plethora — in this case, use V.S. — abste:mious Diet, exercise, & the cold Bath. —

Hæmorrhagia Uterina — occurs in pregnancy — about the third Month — 'tis owing to a plethora. it may be prevented by exercise, abstemious Diet, & occasional V.S. — all violent exercise muſt be avoided — Dancing — taking long ſteps — walking up ſtairs — during ye existence of the Hæmorrhage, ye above Remedies are to be used — with cold Bath. — if inflammatory Diathesis V.S. — opium in great quantities — cool Air — Blisters — Ipecacuan. in ſmall Doses — a blue Cloth, dipped in Vinegar applied cold to ye external parts — this Disorder ~~proves~~ never proves fatal — tho' in child-birth [illegible] ſometimes an Hæmorrhage comes on, with a Syncope, which proves fatal. —

Consumption. — This Disorder is more frequent in this Country yn formerly — this is owing 1. to the change in the manner of living & dreſsing. the Constitutions ſtill getting worse — a cold formerly produced a Peripneumony or Rheumatism, but now a Cough & Catarrh — 2. the climate being considerably changed — our Winters being damper than usual, producing Colds, Coughs & Consumptions. — The remote causes of Conſumptions are five — 1. Hæmoptysis — 2. Vomica — 3 Catarrh — 4 Aſthma — 5. Tubercles — The 1. does not always produce Consumptions — the 2. more frequently — ye 3. very often — ye 4 ſometimes — 5. ye most frequent. — ye Tubercles are ſcirri in the Lungs, ~~in~~ which is contained ſteatomous Matter — yt ſometimes remain a long time without any ill consequences — when this is discharged an Ulcer is left, which is the foundation of a Consumption, which from this latter cause is very seldom curable — ye cause of tubercles is various — a Catarrh — cutaneous eruption — venereal Virus — ye ſcrophula produces the ſame Disorder in the Lungs, as upon the external parts of the body — ye Itch — calcareous Matter formed in the Lungs — 'Tis a doubt whether a Consumption is contagious in England — in this Country it is not — tis ſometimes hereditary — in Lisbon, they burn the Cloths of deceased conſumptive Patients — for a particular Deſcription of this Diseaſe, see Cullen, Fothegill, in ye Medical Eſsays — Bennet. — Remedies. — As it is generally accompanied with inflammatory Diathesis, V.S. is ye first Remedy — if yre are no Tubercles, a vegetable Diet & Milk — this overcomes inflamy. Diathesis, whether in the Lungs or whole body — ſome ſtomachs will not bear pure Milk, therefore Water muſt be mixed with it — muſt — Barley meal — a pint of this may be put in a frying pan with a pint of milk — let the milk ſimmer away — the Meal be quite dry & browned — two or three ſpoonfuls of this flower boiled in Water may be the conſtant Diet of the Patient — Malt, ~~boiled~~ powdered, ſifted & boiled with Water & Wine, ma be drank — The blood ought to be determined from ye Lungs to the ſurface of the body — Exercise of the paſsive kind ought to be used — riding on horse-back, or in a Carriage — ſailing — ye determines to the ſurface — (Sailors are never

Subject to Consumptions, except from external Causes — tho' they are liable to Costiveness) — warm cloaths — Body kept always of Uniform warmth — Patients must wear a flannel Shirt & Drawers constantly — they must avoid taking cold — in the Winter should send them to a warmer Climate — a good Substitute for uniform warmth is a Stove room, where the Patient should be constantly confined. — Blisters & Issues should be used to determine to the surface of the body — a Seton in the Side — One ~~good~~ advantage of a Seton is, that if we are in contagious place, or take cold, 'twill pass off by this drain — ~~avoid taking cold~~ — avoid irritation from whatever cause, as reading, Speaking, &c — a total change of the climate for two or 3 years — going from a cold to a warm climate is preferable — another remedy the Dr. mentions, is, a Soldier's Life — Land military Duty — Mr. Montgomery, & Colo. Parker are instances in this war — Ld. Price in the last. — Palliatives we must endeavour to protract life, untill nature shall cooperate to expel the Disease — as this Disorder generally happens under 40, we must try to prolong life till beyond that, — 'tis remark'd that between 40 & 57 is much the healthiest part of a man's life — Opium is an excellent palliative — in watchful nights give poppies boiled in milk — Asthmat. Elixr. or Liq. Laud. — Tea made of flaxseed, Bran, Hysop — ſugar candy — liquorice — a free use of vegetable & vitriolic acids — ſour oranges & limes. — tar-water — weak pine-bud tea — ye tar pill, made of Tar & liquorice powder — Decoction of the Bark of black cherry tree — Balsamics are of little ſervice as yy increase ye inflamy. Diathesis — ſmoaking Rosin in a pipe — Mercury & Bark are ſometimes used, tho' they are improper Remedies — —

Fluor Albus — this is a very frequent Disease — great people & those that live high, are particularly subject to this Disorder — 'tis a great enemy to fruitfulneſs — if it continues any long time it will produce Death — 'tis often confounded with the Venereal Disease — It may be known from that, by ~~its~~ ye flowing not being of a greenish colour, nor attended with a Dysuria, nor appearing ſoon after intercourse with a diseased perſon — yᵉ external are not in:flamed — Cure — as it is owing to a bad habit of body, yᵉ cure in the first place muſt be attempted by Tonics — as 1. Bark — 2 Steel — yᵉ muſt be given in powder, or in tincture — ſome of yᵉ muriatic Acid may be thrown into the Tincture, which muſt be given in large Doses & continued — 3. Friction — this is very useful, as it gives a tone to the Veſsels, which terminate in the Uterus, & Vagina — — yᵉ flesh bruſh is of great ſervice in this, as in every other chronic Disease — Boerhaave re:commends this Remedy — the ſmoke of Aroma:tics may be recieved into the Bruſh — 4 Exercise — walking in the fresh air — yᵉ use of the cold Bath. — the next ſet of Remedies ~~are~~ is Balſamics — Olybanum — Capivi — Spt. Tere:binth. — Gum. Guaiac. — Rosin — yᵉ diſorder if it continues long, yᵉ humours acquire great Acrimony — Ulcers of yᵉ Vagina ſometimes become cancerous — 2. Ulcers that are not cancerous, Mercury is used with great Advantage — 'tis alſo an universal Remedy in all cachexical Disorders, as ~~tt~~ in a ſalivation, ye habit of body is entirely changed. as soon as the torpid tone of the Veſsels are raised, use the Bark, &c ——

Amenorrhœa — this of two Kinds, Emansio Menſium, & Suppreſsio menſium — The 1st is not always to be considered as a Disease, as the Menses make their appearance in different Countries at diff.t periods of Life — In Scotland they come on at 14. in this Country from 12 to 14 — in Africa at 10 — in Minorca from 10 to 12 — In Cities they generally appear at 14 — in hard labouring Women, they ſometimes do not come on 'till 18, without a Diſease — 'Tis not neceſsary that menſtruation ſh.d precede child-bearing; neither is it the case yt Women become barren after the Menses have ceased — The catamenia in this Country generally cease, from 40 to 45 — hardly ever go beyond 47 — however, the earlier they begin, ye ſooner they cease — About this period women are generally disordered — ye fluor albus makes its appearance after the menses cease — Women are at this time ſeized with a plethora — Cancers of the womb now generally come on — The ill effects of this Disease are obviated by V.S. — ye bowels kept open with gentle laxatives — Crem. Tart. — Sulphur — — *Cure* — The ſame Remedies are to be used as in a fluor albus — Steel — Friction — Exercise, as walking — cold Bath — Electricity applied as near the part as poſsible — *Matrimony* is a moſt effectual Remedy —

Suppreſsio menſium — this is acute or chronic — the latter ye ſame as Emans. mens. — Purging with aloes, a very good Remedy in this disease, as the aloes is not diſsolved before it reaches the Rectum, & ye Uterus being contiguous, it affects that — The acute occurs often — 'tis caused by cold, as the System during menſtruation is more liable to take cold yn at any other time — — we ought in the firſt place endeavour to remove the cause as the Catarrh, or fever — to restore the menses ought to be a ſecond consideration — To please your patients you may recommend Penny-royal Tea, & bathing ye feet in warm water — but above all use V.S. in the arm, to remove ye inflammatory Diathesis — (In chronic ſuppreſsions, 'twill not be neceſsary to bleed —) attenuating

ting Drinks, & laxative Medicines — In obſtructed Lochia, the ſame Remedies are to be used — We ought however to pay little regard to restoring the Lochia; our chief care ought to be the removal of the fever. — A preternatural laxity often follows this Disease, owing to want of Exercise — Women are ſometimes with ye menses always obſtructed, without any ill consequences — During Pregnancy & Suckling, women never menstruate — Some women never have Menses, owing to their being always, either pregnant, or employed in giving ſuck. — This has made ſome People imagine, that women ought never to have Menses, yt they ought always either child-bearing, or ſuckling — 'Tis a remark that Matrimony is life to a Consumptive woman, but Death to a consumptive Man — The first thing we observe in pregnant women, is a ſtoppage of the Catamenia — ſecondly a nausea — third, quickening — ye nausea is wisely ordained by Nature to prevent a plethora — Women ſometimes have a discharge from the Vulva during ye whole time of pregnancy — this is not the true Catamenia, but only a flowing from ye Vagina —

26)

The Menses ſometimes come on in Women that are Nurses, & ſuckle Children — Let Nurſes be ever ſo unhealthy, their milk is generally pure — the Paſsions of Nurses are generally imbibed by the Children. — To cure this Disease our Remedies ſhould be employed at the time the Menses ~~are~~ ought to come on — Opium is ſometimes of ſervice —

Catarrh. — this is of two ſpecies, or ariſes from two Causes, Cold & Contagion — this disorder when neglected or improperly treated, lays the foundation of a great many Consumptions — the pores are ſuddenly ſhut up by the cold, & the perspiration is thrown on ye Trachea — this disease is ſometimes called Influenza, & is very contagious as was ye case in this city in ye years 1761 & 1771. — it ſometimes affects whole Countries — human breath ~~ve~~ is often ſo contagious as to affect people with a Catarrh — 'tis very apt to be followed by a Cough — Cure. Drs. Magraw & Turner both thought this disease a very dangerous one — as it is generally inflammatory, use V.S. in a greater or leſs degree — in this City a Methodist Minister was bled 16 times in ye course of 6 Weeks — low diet is very neceſsary — more ſo in this than any other disorder — The old Adage 'to ſtuff a ~~fe~~ Cold & ſtarve a fever', is not a good one;

for it is as neceſsary to ſtarve ye cold as the fever. — the bowels must be kept open by gentle laxatives — thin diluting drinks often cure this disease — The famous *Garrick's* Remedy in this disorder was to eat a ſalt herring going to bed — this excited thirst, & he drank a large quantity of cold water, which acted as a diluent — the drinks ought to be ſweetened — Barley water with Raisins — ye pectoral Decoction — ſugar candy — liquorice — at night opiates may be given — if these fail, apply Blisters to the ſides or back. —

Dysentery — this is a ſpasmodic Disorder — there is a ſtricture of the Colon brought on by acrimony — 'tis an original Disease — either idiopathic or ſymptomatic — ye idiopath. is most frequent, in (otherwise) healthy, highly ſituated Countries — at Princeton, 'tis very frequent, as alſo a few Miles above Germantown — in yse places ~~'tis~~ there are ſeldom fevers from Contagion — ye reason is, that in these high countries the changes of the weather are more ſudden — in warm weather ye perspiration is great, & if it is ſuddenly ſtopped, 'tis thrown upon the intestines — *Cure* — ye depends on being em employed in time — Medicines early employed, afford a certain & infallible relief — If it comes on with inflammatory Symptoms, V.S. is necessary — y^s is generally the case in the fall of the year. — ye contents of the Stomach & Bowels must be evacuated — for y^s purpose a vomit is sometimes necessary — but ye principal remedy to be depended on, is purging — & ye most lenient purges must be used — Rhubarb, tho' a valuable ~~remedy~~ Medicine in a Diarrhoea, is very improper in this Disorder — We should use Manna, Castor Oil, & Salts — ye last ~~remedy~~ Medicine is very good — ʒi or ʒvi may be given at once, ~~ʒii~~ or ʒij 3 or 4 times a day — these must be continued as long as any Symptoms of ye Disorder continue — On acc^t. of the pain, an Opiate may be given at night. — if the Disease resists all these, apply a large blister to the abdominal Region — Mucilaginous substances may be used, as the Decoct. Alb. — flaxseed tea — Mutton Broth given by the mouth, or by Glysters — purges must be repeated as often as there is occasion — Dysentery is a febris introversa — D^r. Sydenham treats it as a Bilious

Remittent — vomits with Tart. Emet. & then purge with lenients — Have recourse to the remedies prescribed for a bilious remittent — In all Disorders, look constantly to the Epidemic Disorder, as it assumes various Shapes. — Bark shd. be given in Bil. Remitt. after puking & purging — Bark may be given in a Symptomatic Dysentery, accompanied with a Bil. Remittent — Bark is an improper Remedy in an idiopathic Dysentery — If this Disorder with a Typhus, apply Blisters. ——

Neuroses. — The Nerves are not alone affected in these Disorders — Comata — Apoplexy. — more frequent yn. formerly — 'tis artificial — the child of Luxury — more frequent in Europe yn. here, owing to their high living & Indolence — 'Tis peculiar to short neck'd & corpulent people — tho' this is not a Rule without Exceptions, as long neck'd people are also subject — It mostly attacks those turned of 40. — 'Tis owing to a venous Plethora wh. prevails — Prox. Cause — Extravasation or Intravasation of Serum or Blood, 1 From a rupture of the Bl. Vessels 2. from Congestion These Causes are not easily distinguished — Persons far advanced in Life are subject to the Serous apoplexy — If this Disorder comes on gradually, 'tis

& Serous Apoplexy. — When persons are seized with it in high health & suddenly 'tis owing to a Rupture of a Bl. Vessel — 'Tis divided into Idiopathic from extern^l & intern^l Causes, & Symptomat.

Remedies. — V. S. copiously — a large quantity to ~~be~~ be taken at once — The Duke of Cumberland lost 40 or 50 ℥ of Bl. in an Apoplexy — V. S. must be used in y^e. Jugular if practible — In both Arms, & y^e. orifice must be large — Purging by Stimulating Clysters. — Stimulants must not be applied to y^e. Nose in a Sanguineous Apoplexy — Blisters to the Neck in every Species — Cataplasms to y^e. feet — these must be stimulating — *Preventitives.* 'Tis a common Opinion that y^e. 3^d. Stroke of an Apoplexy is always fatal — This is not true, & our Patients sh^d. be encouraged to think otherwise — Persons that are predisposed to it, if they have already had a *Fit*, should use temperate Diet — Exercise of the active kind — Walking Determines from the Brain — The Bowels sh^d. be kept open — If y^e. Patient has had y^e. Piles, they should be brought upon him again — let him take Crem. Tart. & Sulphur. Avoid all Spirituous

& malt Liquors — the long use of the latter diſpoſes to the Apoplexy, Palsy, & Dropsy — Live with the ſtrictest temperance — when an Apoplexy takes place from want of tone, Wine may be used — Recommend to the Patients to ſleep with their heads high — never ly on the back, as the blood is then moſt apt to ſtagnate — never ly conſtantly on one ſide — The *Incubus* is nothing but a tendency to an Apoplexy, a ſtagnation of the Bl. in the Brain, this is cured by ſpeaking or ſtirring. Lying upon the ſide prevents snoring — ~~Ar~~ Other preventitives, are perpetual Issues or Setons in the Neck — The *Idiopathic*, is either from extern. or intern. Causes — *Apoplexia Traumatica* — copious bleeding — & ye ſame remedies as above. Persons that have been hung, are recovered by V.S. The Paſsions of ye Mind ſometimes cause an Apoplexy, which is cured by the ſame treatment. Persons that are dead drunk, are in a kind of Apoplexy, which may be treated with V.S. — But a more certain remedy, is to pump water on the head of the Patient for 1/4 of an hour — Persons may be recovered by fear coming on ſuddenly.

Apoplexies from Narcotics & mephitic Air are cured by throwing cold water on ye head — then use V.S. — these are prevented by Water — ~~[illegible]~~ ~~[illegible]~~ The ill effects of Stoves are obviated by placing a Bason of Water on the Stove — the evaporation of ye Water prevents the mischief. Apoplexies from Insolation. These prevented by keeping the Sun from the head by an Umbrella or a white Hat. — Asphyxia — a Trance — this happens to bodies when they have lain long under Water — Cessation of the Pulse & Breathing, are not certain signs of Death, — Putrefaction is only to be depended on — ~~In~~ Bodies that have been frozen should be plunged in cold Water, or wrapped in Snow — Tobacco juice should be swallowed. ~~In drowned Persons~~ Avoid all heat, or warm water in recovering such Persons — Drowned Persons swallow no Water, so tis very injurious to hang them by the heels, or roll them on a Barrell — Endeavour to restore the Circulation & obviate the cold — The Body should be laid before the Fire, & rubbed with dry Cloths — placed on a Bed, & persons should roll on them, — cover y^m. up warm — Endeavour to restore the Peristaltic Motion, by blowing Wind up ye Anus — Excite the action of ye Lungs, by blowing wind into them thro' a quill — to remedy the injury done the Brain, use copious V.S. — Inflammatory Disorders often follow these accidents, which are to be treated as other Inflam. Disorders. —

Apoplexies from Contagion are to be managed as thoſe from Mephitic Air — Cold water.

Palsy. a diminution of ~~the~~ voluntary Motion — often accompanied with ſleep — Prox. Cause is part of ye ſame with Apoplexy — It depends upon an Effusion of Blood or Serum on the Brain — either from Intravasation or Extravasation. dividing a Nerve will ſometimes occasion it — The ſame Causes which would bring on a Palsy, in a ſtrong Conſtitution, would, in a weak one, occasion an Apoplexy — Cure — the ſame as in ye Apoplexy — In a Palsy of ye ſerous kind, V.S. is not ſo proper. Blisters are to be used, & ye moſt powerful Cordial, & ſtimulant Remedies — gtt. x. of Sal. Volat. may be given every hour — Friction — Electricity. the hot bath — Aloetic Purges, which give 4 or 5 ſtools a day, will do ſervice — ſtimulating Cataplasms applied to ye feet — where the Palsy is partial use ye hot-bath — ſtrengthen the parts by weights appended to them. Electricity is useful only in this partial Palsy. — Where the Br. is affected, it is hurtful — *Preventitives* — the same as for the Apoplexy. — There are two species of Palsy, Idiopathic & Symptomat. Tremor from drinking is cured by Bitters. —

Syncope. depends on a cessation, or diminished Motion of the heart. — The motion of ye Heart at Child Birth depends on the will, and afterwards becomes habitual — *Causes* — Internl. a Plethora, Polypus, or a preternatural quantity of Water in the Pericardium. — Externl. — from the passions of the mind, as Fear — a Sphacelus of ye Bowels & other parts — Inanition — V.S. Pain — Wounds — Hysterics — Putrid fever — Gout — *Cure* — Place ye Body so as to give room for the action of the Heart — in a recumbent Posture — on a bed — throw cold Water in the face — apply Volatiles to ye Nose — if these fail, give strong Cordials, or Volatiles internally — *Syncope* from *Antipathia*, or disagreeable Objects — the *Effluvia* mixes with the Æther of the Brain — old Cheese — Water Honey — from Objects on which Persons have been Surfeited — This is cured by Perseverance — *Peter the Great* overcame his aversion to Water by forcing himself into a Boat, & crossing a River —

Dyspepsia. this occurs often — manifests itself by Sickness at the Stomach — Cardialgia. Symptomatic, or Idiopath. — 1. from a disorder of the Stomach itself, ~~or~~ of other parts. — by overloading the Stomach, — long fasting — ill quality of the food — Cardialgia from Phlegm — from acids — &c — from a Schirrus of the Stomach — Ulcers — Absess — Poisons — Worms — Cardialgia Sputatoria, anglice Water Brash. — this depends on an inversion of the peristaltic Motion. — this in the highest degree, brings on a Miserere Mei — Cardialgia from other parts of the Body — from an affectn. of ye. Brain — from Dentition, as in Children. — from an Obstruction of the Liver — Nausea Gravidarum. — this sometimes goes too far — relieved by a gentle Emet of Ipecac. — mild Aromatic Bitters — Nausea Marina. Sea Sickness. Sailors are first Costive, next have a Dyspepsia, & 3d. a Vomiting — Cure! Keep ye. Bowels open, with Aloes, Salts, or Salt Water — Opium in ye. highest degree — Cardialgia from drinking — Spirituous Liquors the Cause — the worst of these is Rum People first begin with Toddy, next Slings, & so on to raw Drams, Jamaica Spirits, & at last must

This is a frequent Cause of Chronic Disorders — as ye Dyspepsia, Jaundice & ~~Jaundice~~ Dropsy — Particular Professions are subject to it — as School-Masters — labouring People — Smiths — Carpenters — Country Physicians. Women sometimes are used to it from taking it in Cholics &c. — Opium shd. be substituted in these Disorders. — Symptoms in a Person who has given himself to drinking — Vomiting in the Morning — a tremor in the hands. Paleness of the Countenance — Bloated — Flabbyness — disagreeable Smell in the Breath — Mania. Cure of this kind. Recommend a total & sudden Abstinence from Liquors — advise him to regard his Family, Life, Soul — Fortune — recommend as a Substitute in some Cases, Wine — Port or Madeira — Green or Bohea Tea, tho' injurious to the Nervous System, yet are better than to continue the use of Spirituous Liquors — These however are not so injurious as is generally thought — they are very refreshing in hard Study & Labour — Cure in genl. Vomit, as the Stomach is loaded with Acids, &c. — use Tonics, as Elix. Vitriol. Steel, Aromatics — The Diet should be of the stimulating kind — Animal Diet is easier assimulated than Vegetable; all kinds of which are to be rejected — Indulge in dry, hard

Biscuit — forbid fermented Liquors, as Beer, &c — Use sound Old Wine & Water — Water is best if the Stomach will bear it — Drink nothing at all if the Patient can do without it — All the meats must be dry — Beef & Mutton best — Lamb & Veal not so good — Use Eggs — especially the Yolks — Recommend Exercise by all Means — Walking & riding alternately — Climbing a hill — At *Bern* in *Switzerland*, they are very great Eaters — the reason of which is, that the Country is very hilly & the people are perpetually climbing — *Palliative Remedies*. Common Salt & Lime Juice — Juice of half a Lemon & 1/2 a Gill of Salt —

Hypochondriasis. This arises from the same Causes as *Dyspepsia* — More frequent now than formerly — In this Disorder, a defect of Sensibility & Irritability, produces a *torpor & stupor* — The Alimentary Canal is affected — from hence proceeds Costiveness, Dyspepsia, & Indigestion — 'Tis distinguished from ye Hysterica, by affecting Men chiefly — The Hypochond. occurs in Women oftener than the Hyster. in Men — Persons that are studious and of a sedentary Life are subject to the Hypochond. — Frothy Light persons to ye Hysteria — Poets too, & Painters. Hypochondriac Persons are best in Summer, & *vice* versa in regard to Hyſter. — The Globus Hyſtericus, is wanting in Hypochond. People — In the Hypochond. there is a defect of Irritability, in Hyſter. a defect of Senſibility, as well as of Irritabil. which produces Mobility. — Cure. — Same Remedies as for the Dyſpepſia — Tonics — Elix. Vitriol. Aromatics — Steel. Animal Diet — Beef & Mutton. To these add a variety of cheerful company. — Uſe Exercise — Take a long Journey, of 3 or 400 Miles — in this the Patient will meet with a variety of Objects & Uſage — Uſe ye Fleſh bruſh — Where perſons are not in a ſituation to take ſuch a Journey uſe the Warm Bath firſt, & then the Cold Bath. — Where these cannot be had Mercury will be fo to be of great ſervice — Salivation never fails. 'Tis of great importance to introduce new Ideas. This Disorder is either Idiopathic or Symptomatic. The ſame remedies will ſucceed in every ſpecies of Melancholia — In the Hypochond. Phthisica a Milk & Vegetable Diet, is not good. — Uſe Elix. Vitriol & Exercise on Horse-back —

Chlorosis. Affects the Female Sex; chiefly young Women — An appetite for unnatural Subſtances, as Lime, Coals, burnt Quills, Sand, Dirt, Clay, — Cure. The ſame as Dyſpepſia & E=mania Mercurium — Cold Bath of ſervice. —

Spasmi. – Tetanus ~~& Trismus~~. ~~Regimen~~

~~[illegible]~~ – Either a Contraction of the Body backward or forward – the former called Opisthotonos & ye latter Episthotonos. – A certain degree of Tension is necessary for the health of the Body. This depends on a fulness of the Arterial System. A diminution of this fulness is followed by a want of Tension in the Nervous System. This Tension is connected with the Temperature of the Air – The colder it is, the more we are braced. In the absence of these Causes of Tension, a degree of weakness ensues, ~~& produces~~ 1st Tremor 2dly Convulsion – There are two kinds of Spasms, Clonic & Tonic. The 1st is of an inferior Degree, the latter perpetual – Tetanus is of the clonic kind, Trismus, of the tonic. All Spasm depends on a certain Degree of Debility. Causes of Tetanus. Cold, more frequent from wounds, particularly in hot weather – from Thorns, & Nails – Tetanus Symptomatica, from Hysteria or worms, yeilds to Opium – Trismus Nascentium. This very common in the West Indies – depends on relaxation – Both Tetanus & Trismus are diseases of warm Climates, or Seasons, & follow sometimes debilitating Exercises. Cure. Opium, tho' a powerful Antispasmodic, yet is not a Tonic, therefore is not proper. –

or at least not to be depended on — As ſoon as the Patient is ſeized, use the Cold Bath, in a high Degree — plenty of Bark & Wine — from ℥i to four in a day. — Bliſters — Mercury in large Doses internally, & rubbed on externally on the parts affected till Salivation. — These last Remedies may be ſubſtituted for yᵉ Cold Bath. — If the Spasm continue long, give from 6 to 10 gr. of *Ol. Succini*. *Dr Evans*, of the West Indies, makes it a practice to purge Children, as ſoon as born with *Magnesia*. —

Convulsio. This has various Causes. *Atonia*, a predisposing Cause — 'tis either Idiopathic or ſymptomatic. *Onanism* ſometimes a Cause. *Chorea Sancti Viti*, a ſpecies of Convulsion — 'tis ſymptomatic from a ſtroke on the head. *Convulsio Gravidarum*, a dangerous Complaint, & they ſeldom recover — *Convulsio a Vermibus*, a very common Complaint. The Cure of this consists in expelling the Worms. *Convulsio Intermittens* — this is very common, as the chilly fit is ſo ſevere, as to produce Convulsions — this to be expected in Children. — they muſt be treated as common Intermittents — *Cure in general*. When this Atonia depends on a Plethora, use V.S. particularly in Convul. Gravidarum. *Opium*, is an invaluable Remedy — to be given to Children that have Worms, before any other Application — And in Convuls. Intermitt. give L.L. Make it a ſtanding Rule, never to visit your Patient, without a Vial of L.L. in your Pocket. — Give Opium to remove the Paroxyſms, & afterwards use the cold Bath, & Exerciſe. —

Raphania, or Cramp. — Atonia begets Spaſm. this occurs in ſleep, & generally in the Legs — Exceſsive Labour destroys Tone — Pregnant Women are ſubject to the Cramp. — Cured by avoiding exceſs of walking or ſtanding — In pregnant Women, use V.S. — Palliatives. In the paroxyſms, use cold air, jump out of bed on ye floor — rub ye Limb. — preſs it against the foot of the Bed — Graſp a roll of Brimstone in the hand — Eel ſkins tied round the Knee act mechanically, by obſtructing the refluent Blood — —

Epilepsia. Is either Idiopath. or Symptomat. depends on Mobility — a diseaſe that becomes worse by habit. — Remedies. Aſtringents, either vegetable or mineral — Miſsletoe — Copper — Zinc. White Vitriol of ſervice only in ſmall Doses, as the efficacy depends on the gentleneſs. — Sometimes tis perfectly cured by putting Setons in the Neck — Sedative Paſsions of the Mind often cure it, as Fear. — Epilep. & Hyster. depend on the ſame Causes, & are cured by the ſame Remedies — Fear continually inculcated, will prevent the fits, as was the

Of a Girl in the Edinburgh Hospital — Cold Bath — change of Climate — this a very good, & the most effectual Remedy — this change must take place at least for 2 Years — The fits have been suspended 8 Years, by 1 Years absence — Tis sometimes of service to go to a worse Climate — Travelling a cure for Sterility sometimes — A change of Climate makes great change in animals — Sheep taken to the West Indies, lose their Wool & get hair. Nature sometimes performs a radical cure — When the Epilepsy comes on before Puberty, it at that time very often leaves the Person. —

Asthma. Remedies V.S. & immediately after an Anodyne — Emetics — Pediluvia — Moist Air. —

Pertussis. If attended with Inflamy Diathesis, use gentle V.S. — then Emetics of Squills, Ipecac. Antimonial Wine, or Tart. Emet. — Stimulants, as Pitch Plaisters, Cantharides, Setons in the Sides, Asa Fœtida — Volatiles — Tonics, as Bark, Zinc, & Cold Bath. — Change of Air. —

Pyrosis. prox. Cause. An inversion, or suspension of the Peristaltic motion of ye Stomach Cure. Tonics — Bowels kept open — Bitters and

Aromatics — Gentian, Cascarill, Orange Peel, & Seeds — ℥ij of Aloes put into a pint of Spirits & a tea-spoonful taken 2 or 3 times a day —

Colica. An artificial Disorder, frequent in this City — Women most subject to it — occasional Cause, Cold & wet. — occurs in the decline of Life after the venous plethora takes place. Studious, sedentary people die of the Colic. — Prox. Cause. Spasm, pain of distension, & of acrimony. Cure. If the patient is plethoric, bleed in a small degree — but only when this is present — Anodines are of the greatest service — give them as long as the pain continues — Large doses of L.L. even to 1000 Drops. — These must be applied externally. Anodyne Liniment applied to the Bowels — Anodyne Plaister is of service — tis good also for ye Tooth Ach — The next things to be given are laxatives — these must be very gentle — all Drastic Purges must be avoided — Salts, Manna, Sena, Castor Oil — a suppression of Urine, ~~i~~ sometimes accompanies the Colic — Salts then are of particular service — Glysters very powerful in this disorder, tho' they must not be used too early, after purgatives — Glysters often act as Antispasmodics, if gentle. Colica Pictonum often brought on by early Clysters. — In cases of obstinate Coſtiveneſs, & great pain when other things have failed, Tobacco ſmoke injected into the Bowels, give ease — Water impregnated with Tobacco ſmoke injected by way of a Clyster, a good substitute for the ſmoke — Warm Vapour Bath a good Remedy, or a bath of warm Water — Water thrown on hot Bricks or ſtones the Patient covered by a Blanket — this Remedy often ſucceeds, when every thing else fails — Blisters are of great use — they act as antispasmodics apply them to ye bowels or thighs — this is the treatment during ye actual existence of ye fit —

Obviated by ſtomachic Bitters — those mentioned for the Pyrosis — Give Steel in Port or Claret — as it is generally attended with Coſtiveneſs this muſt be obviated by laxatives, as Pills made of Aloes, Soap Calomel — Sulph. Crem. Tart. — accustome yourself to go punctually to ſtool — Diet forbid all that disagrees with the patient — Vegetable Diet bad — Animal food much better, especially Beef & Mutton — Pork is not ſo good — Colic is often brought on by a dinner of Veal — The tone of the Stomach ſhould be supported by generous old Wine — as Madeira — New

Wines are injurious, as there is too great a determination of ye fluids to the ~~Stomach~~ Bowels — Change this determination to the Surface of the Body. — for this purpose wear flannel next ye Skin — use a flesh-brush. cold Bath — Exercise on Horse back — The symptomatic Colic requires much the same treatment, tho' ye original Disorder must be attended too — *Colica stercoria*. Miserere Mei — cured by introducing an Instrument — those who work in Lead ~~are~~ subject to Colics — *Colica calculosa* from the Kidneys' being affected — the general method of Cure will apply to all —

Cholera. this occurs chiefly in Summer — from a preternatural Secretion of Bile — a sudden obstruction of Perspiration, brings it on, as will an excessive quantity of sweet fruit — this disorder proves fatal sometimes in 24 or 48 hours — *Opium* is an infallible Remedy in this disorder in the lowest stages — Nature generally cleanses the Stomach & Bowels — Opium must be given in great quantities. —

Diarrhœa. not accompanied with a fever. Bloody stools are not a pathognomonic sign of a Dysentery, as they sometimes occur in a *Diarrhœa* When it continues long, tis of difficult cure — It

Sometimes lasts from 3 Months to 15 Years — affects all ages & Sexes — a Disease of every condition & occupation. — Sometimes the Consequence of a Dysentery *Cure*. first a gentle purge of Rhubarb — this ye only purge to be used — Rhubarb is bad in a Dysentery, but of great service in this Disorder — 'tis not sufficient to give a single Dose, it sh^{d} be repeated often, sometimes combined with Magnesia, — Nutmeg — an Emet. of Ipecac. — In a Diarrhoea there is a Spasm affecting the Bowels, a preternatural Motion of them & a quickening of the peristaltic Motion. An Emetic will remove this, as one of Ipecac. *Alvi laxitas, Cutis densitas*. — Ipecac. is to be used *pro re nata*, — sometimes tis useful in small Doses — Some suppose the good qualities of Rhubarb, are improved by toasting, but it is not so powerful afterwards. — *Astringents* — White-Oak bark, Bitters, strong Camomile Tea — *Demulcents*. Decoct. Alb. powder of Hartshorn very fine — Rice water. When the Bowels are afflicted with pain, gentle Anodynes are necessary — Golden Rod, the root most powerful. Comfrey Root, Mallows Tea, Flaxseed Tea — Generous Wine may be drank to support the Tone of the Bowels — Port is preferable to Claret.

Bitters may be taken by way of Tonics. – Rhubarb joined with Aromatics – Peruvian Bark is not proper in this disease.

Diet. – great care must be taken of this. – When a Diarrhœa is connected with a morbid of the Stomach, which may be known by green Stools, the Diet must be animal – When the Stools are of a dark colour, they are of an Alkalescent tendency, & Vegetable diet should be prescribed. Milk is also very good, as ~~is~~ are ripe fruits of every kind – fruit is good too in a Bilious Diarrhœa. Exercise must be used, as riding on horseback a voyage to Sea – Warm Bath, as it brings on Perspiration. – afterwards ye cold Bath – Where a morbid acidity prevails, Chalk is of service, a Diarrhœa is known to subside by the Patient's breaking wind – this sign holds good in a Colic. When this disease is going off, the Stools acquire a worse smell – The *Cure* is ye same in all Species – *Diarrhœa hypercathartica*. This should be attended to – a Diarrhœa often comes on in the latter stage of wounds. –

Diabetes. – a chronic Disease. 'Tis a Species of Diabetes that children are subject to, occasioned by a relaxation of the Kidneys — One Species of it is accompanied with preternatural thirst. *Cure*. Tonics of every kind — Serum aluminos. Tinct. Cantharid. Blisters to the region of ye Kidneys.

Hysteria. Women chiefly are subject to this — tis increased by warm weather, and in this Disorder they have the *Globus Hystericus*. by these three remarks it may distinguished from the Hypochond. Hysterics are relieved by Grief — *Cure*. Much the same as the Epilepsy. all those remedies are good — Zinc — Asa fœtida — Steel in every form — This disorder is idiopa:thic in y^e *Hysteria Chlorotica*. a Want of the Menses often occasions a Hysteria. —

Hydrophobia. Hysteria often assumes the Shape of this disease — The common time be:tween the Bite of the Animal, & ye coming on of ye animal is about 40 Days — *Cure*. Large Doses of Mercury have been given, even to Salivation but with little good effect. — Wash ye part with Salt & water, & use Ung. Merc. till the wound heals. — As it is a disorder of the spasmodic Kind the cold Bath, perhaps, used in a great Degree would be of service. —

Visaniæ. An Impairing of the Imagination, Memory, Judgement & the Moral Faculty. –

Amentia. Idiotism. A medium in the Texture of the Brain is neceſsary to constitute ſound Judgement – In Infancy a too great Softneſs takes place, & in old Age, a too great hardneſs. – This Disorder has different degrees in it – the loſs of one or more faculties – Old Men lose, 1st. their Memory – 2d. their Judgement – An exceſs of Memory is generally accompanied with a want of Judgement – Children have great memories, & little or no Judgement. 3d. a want of Memory & Judgement, & yet the Moral faculty remains – 4. with a want of Memory Judgement, & the Moral Faculty impaired – There are different Species of it – 1. *Microcephala*. All Animals have understanding in proportion to the largeneſs of the Brain – 2. *A pathemata*. From paſsion violent Anger produces a temporary Amentia – 3. *Temulenta*. from Drink – 4 *Febrisequa*. a fever affects the Brain, & produces Delirium – ſometimes the Reason is never recovered, tho' it oftener is. – *Dr. Leland* is an Instance of this – He had a fever at 6 years old, by which he was ſo much affected that he forgot every thing he had learned, and was oblgied to learn anew. — 5. Ab Ictu. — There are many Inſtances of this. — 6. A Venenis. This disease is certainly in the reach of Medicine, & tho' not ſo much under our Command as ſome other Disorders, yet it is in ſome Degree — In the other Species great relief has been found from certain Remedies. Tonics, — Exercise — Cold-Bath — Cold-Air — these are of ſervice in all cases of Idiotism. — In the Rickets, when the head is large & ye bones ſoft, the Cold Bath is of ſervice —

Melancholia. Partial Madneſs. a false perception of some particular affair — Don Quixotte, an Instance of this. — Melancholia & Hypochondriasis are different. — there are different Species of it — 1. Anglica — this is brought on by disappointment — The Month of Novemr. is the moſt gloomy of ye 12. — The Manners of the English are in general very grave — as they are cut off, as it were from all the world, this gives them a ſtiffneſs. — this species is generally the effect of Example — 2. Religiosa. Sometimes attended with Grief, ſometimes with Joy — If ~~they~~ it is attended with Grief, tis from doubt of their future happineſs; if with Joy; from their firm hopes.

3.° *Amatoria* — 'Tis a rule, that whoever thinks long on any Subject, thinks wrong upon it. The Man that thinks that any Woman is poſseſsed of every accomplishment, & she alone, is *insane*. *Cure* — 'Tis a disease of the Body as well as the Mind — V.S. ſucceſsful in every Species of this Disease — Blisters — these have a very great effect on the Brain — The Duke of *Conté* lost his Love by being bled & blistered in a fever — A Man that had married entirely from Love fell ſick ſoon after his marriage — In the Course of the Disease he was blistered — when he recovered, he had entirely got over his Love for his Wife. — Purges of y.e drastic kind — Exercise — Variety of Objects & Company — Take long Journeys — *Rouſseau* ſays that *abſence* *is the* *Tomb* *of* *Love*. —

Mania. In this Disease the Patient reasons wrong on all Subjects. Often arises from y.e puerperile fever — from Hysteria — the Memory suffers considerably. *Insania Partialis*. — One faculty only diminished. *Universalis*, wh.n all the faculties are impaired. This disease arises from various Causes. — Sometimes from an Hereditary Disposition — *Cure*. this is difficult.

where the Paroxysmes are subdued, 'tis chiefly where this disease is not hereditary. Mania a Potis. from the excessive use of spirituous Liquors — It may be palliated, by V.S. as the habit of the Body is generally plethoric. this may be pretty plentiful — Blistering on the Neck — Purges are very useful in all diseases of the Brain & must be repeated often — Opiates — these tend to take off the excess of Incitement. Violent Exercise, or hard Labour. — these take off the tone of the Nervous System. A Man in Aberdeen cured people of Madness by putting them to excessive hard labour — he put them in a plough & goaded them. Nebuchadnezer's Remedy was a good one — He lived entirely upon Vegetables, & roamed about. Mad People should not be confined in Cells.

Somnium. This is a Disease. Sleep is not sound when people dream. Dreaming depends on a partial Collapse of the Brain — a sudden Collapse, occasions starting in the Sleep. In Sleep, the Memory & Judgement are gone, & Imagination continues, which is the Cause of Dreams. Imagination is stronger in Sleep than at any other time — Sometimes Judgement fails & memory continues, & *vice versa*. Sometimes the Moral Faculty is suspended in Dreams. Sudden Starts in Sleep, from supposed Crimes, sometimes. — *Prox. Cause*. All stimulants — as Cold. Drinking freely, or eating a hearty Supper. — these cause dreaming — People generally dr^{m}. towards morning — Dreams are sometimes very troublesome. *Cure*. avoid all occasional Causes — if from hearty suppers, avoid them. If Indolence is the Cause, use exercise. A Man never does that in his sleep, which he has done thro' the day, so as to fatigue himself. He never dreams of a Subject, which he has had much in his thoughts during ye Day. — He seldom dreams of lost Relations — If he thinks much of his Mistress, he seldom dreams of her, except when just beginning to love, or leaving it off. If people walk in their sleep, make them walk their whole day — Worms are sometimes the occasion of terrifying Dreams. —

Cl. 3. *Cachexia* Ord. 1. *Marcores*. Gen. *Tabes*. This includes a bad habit of Body. — *Ulcerosa*. a Vomica *Senilis*. a Stomacho *Atrophia* Infantilis — Cure.

As this Disease depends on a want of Tone in the Solids, Use Exercise, Cold Bath, riding on Horse-back, long Journeys, & ſhort ſtages — Steel. Bark —

Atrophia. The ſame as the former with-out Pyrexia. —

Ord. 2. Intumescentia. Gen. Polysarcia. Fat People ſeldom attain great Age, as it disposes them to many Diseases. — Before the age of 40 Fat is not conducive to Health, tho afterwards it is. — After this Age, fat conceals wrinkles, Supplies the place of heat — ſheaths acrimony. — The System has an entire change at 40. The Arterial to Venal — Those that are ſubject to Diseases between 30 & 40. generally afterwards acquire a good ſtate of health. — After this Period the paſsions generally subside, — People experience much more happineſs, and are generally more healthy. — There are no Remedies for fat beyond this time — To prevent Fat from being troublesome, use Vegetable Diet, & abstain from Butter — use ſkimmed Milk — Animal Food disposes the Body to being fat. —

Pneumatosis. Moſt frequent from

Wounds — from fractured Ribs, which wound in the Pleura & Lungs, the Air insinuates itself & into the Cellular Membrane — Hysterical Women Sometimes suddenly swell — Applications of Quick Lime to such swellings are of service — Tonics. Cold Bath, & Exercise. —

Tympanites. This is easily distinguished from the Dropsy by the sound — Tis a Disorder which depends on weakness, & is cured by Tonics.

Physometra. Seldom occurs. —

Dropsies. 1. Anasarca. 2 Hydrocephalus. 3. Hydroracthitis. 4 Hydrothorax. 5. Ascites. 6. Hydrometra. 7. Hydrocele. The first is an universal Swelling — begins first at the feet. — The second either external or internal — There can be a Dropsy of this kind with an enlargement of the Brain. — It comes on with great Pain in the Head, attended with Coma at first, & afterwards a Fever — If you hold a Candle to the Eye, & the Pupil does not contract there is reason to suspect a Hydrocephalus. — It sometimes comes on gradually, & at others suddenly. This Disorder is thought incurable, tho' there have been a very few Instances of a Cure being bro't about — The third kind is the Spina Bifida.

56. Many Children are born with this Disease. They are ſubject to the Epilepſy, & nervous Complaints. — The 4th. Kind generally follows on Hæmoptoe — 5th. The Dropſy of the Abdomen. 6. That of the Womb. — 7. Of the Teſticle. —

Cure of the laſt. This ſwelling is ſeated between the Tunica Vaginalis & Teſtis, where a quantity of Water is contained. — The Teſtis is ſeldom impaired, & does its office as usual. — The Cure is beyond the reach of Medicine, & muſt be attempted by the Operation — Tapping will ſometimes cause a perfect Cure, & ſometimes tis only a palliative — & the Puncture ſeldom heals — There are three Methods of a radical Cure — 1. By Incision — 2. Caustic to the moſt depending part of the Scrotum. In both these Cases Inflammation is produced — 3d. with the Needle — You let out the Water, & introduce a needle, ~~thro' canula~~, with thread, thro' the Scrotum. This muſt remain in for 2 weeks, & then the threads to be withdrawn one by one. This laſt is Dr. Pott's Method of curing a Hydrocele.

Prox. cause of Dropsies. Abſorbents exist all over the Body, & there is a perpetual effusion of Halitus — The Water is absorbed by the patulent

Mouths of the Lymphatics. — As the Arteries Veins & Lymphducts are possessed of Irritability, the Lymphatic system gets sometimes relaxed, a want of Absorption comes on, & hence a Dropsy. — There are different Species of Anasarca 1. Spec. Gravidarum. Relaxation brought on by Indolence — Lymphatics being overstretched will cause a Dropsy. — When the Uterus is swelled much, it presses on the Iliac Arteries & returning Veins — the Lymphatics being overstretched, great quantities of water will be effused, from the exhaling Arteries — This is cured by V.S. & Cathartics. — A Swelling in the Legs, accompanied with Sizy Blood, is cured by V.S. — Cure of Dropsies in genl. — this must be varied as the Cause is so. — Violent & drastic Purges. Jalap. Scammony — Gambog. Emetics ~~are~~ most powerful ~~Remedy~~ Tonics — Chalybeates & aromatics. Diuretics are sometimes of use — Oxymel of Squills. Frictions are of great use, powerfully & often used. Setons — Sweating. Exercise of the active Kind.

Ascites. In the Cure of this mercury alone is to be depended on, & must be given to salivation. As much as the Patient pleases of Aromatic Drinks — Tapping must be performed early. When it is long delayed there is little chance of

58) a Recovery. The Dr. has found ſome complete cures by Tapping — tis at leaſt a palliative.

Physconia. This includes all ſpecies of visceral obſtructions — the Liver is often the Seat of these obſtructions — almoſt all Chronic ~~cases~~ Cases are attended with obſtructions of the Liver. — Cause. 1 Fever — often ſucceed long Intermittents. 2. Intemperance — Drinking hard — 3. Severe Study. this produces firſt the Hypochondriasis, & then these obſtructions. Tis then called Morbus ſtudioſorum. Cure. Avoid all Causes — if from intemperance, live low — if from Study, avoid Books. — if from Intermittents, use Mercury — Calomel, Rhubarb & Soap, made into pills. — Mercury is ſervice let it arise from what Cause ſoever — If given to Salivation, its effects are ſurpriſing — afterwards, if the Lungs are not affected, give Pulv. Cort. Peru. — next Mineral waters — these effect a cure oftener than any thing else — riding on Horse-back, — long Journeys. —

Rickets. Leſs frequent here than in Europe — great number of them at Edinburgh, — in London there are not quite ſo many — Causes. Bad, vapid Diet — Negroes are almoſt the only Perſons that have Rickets here, for their Reaſons that their food is bad, & want of Exerciſe. Putting Children young on their Legs, is of ſervice in the Rickets — 'Tis a vain fear in Mothers who ſuppoſe that it hurts Children to put them ſo ſoon on their Legs. — Neither the Indians nor Ruſsians ever have the Rickets. — *Cure*. Give plenty of ~~[illegible]~~ Steel & Bark — uſe frictions — generous food. Freſh air & Cold Bath. this alone often cures.

Ord. 3. Impetigines. *Scrophula*. Conſult Boerhaave & Ruſsel on this diſorder. — When it is in the Throat, uſe mineral Waters, Bark & Steel. Young People & the Female Sex are moſt ſubject to it.

Syphilis. This diſorder & the Gonorrhœa are different — tho' they ſometimes appear in the ſame perſon at once — This diſorder appears in *Shancres*, *warts*, *Bubos* or *Eruptions* — ſometimes with a violent Heat or burning in the Penis. — The time of its appearance after taking the infection is from 3 Days to 3 Months — it takes its way thro' yͤ Lymphatics. — The Groin is generally the firſt affected — it then travels up the Body, in women to the Breaſt, in Men to the Throat & Noſe, from thence deſcends to the Legs. — it appears

60 generally near the part first affected – It may be given by impure Coition giving or receiving Suck, if there is any ſore in the Childs mouth, or on the Woman's Breast – tis propogated by ſores ſometimes in other places than on the Penis – Children are ſometimes born with this Disease – it makes its appearance in the head first, & is generally fatal. This disorder may be taken too, by venereal matter touching wounds or ſores. – Cure – Mercury alone is to be depended on, as it is a ſovereign Remedy in all climates and Stages of the Disorder. – Mercury was first made use of in this disorder under the form of an unguent. Saline preparations, as Calomel & Merc. Corros. Sublim. ℞. Merc. Cor. Sub. gr X. Brandy lbi. Water lbi. – Plenck Solution – Plummer's Pills. – Argent. Viv. with Kermes mineral, G. Guiac. & Soap. – Argent. Viv. rubbed with Honey or Molaſses, & ſome Soap added, 2 Grains of the Mercury to be given every night. – Sudorific Decoctions are the next in order – In a warm climate, Decoct. Sars & may throw off the Disease. Wort Liquors beſt suit our Climate – Spelts ground fine, & ſifted – take 3 ſpoonfuls, & 12th of boiling Water, with Nitre & a little Sugar – Double this

Quantity ſhould be drank every day. —

Symptoms. *Ulcers* — these ſhould be treated with Ung. Precip. — Where ſchirroſity exists, no Precipitate ſhould be used — treat this as cancerous Sores — apply Caustics to the ſchirrus. The Lunar Caustic & Lap. Infernal. will not anſwer, mild, vegetable Caustics ſhould be used. — An Extract of Poke Berries — Pulv. Sabin. these laſt remedies destroy only inorganic Matter, while the former destroy all Kinds of Matter. —

Bubos. Diſcuſs these if poſsible by Ung. Merc. & the moſt powerful Discutients — these ſhould be applied round the Bubo, & not directly on the Part. — If these fail, use ripening Cataplasms. — *Swelled Testicles*. these are removed by emollient Applications & Fomentations, & a ſuspensory Bag. *Warts*. The moſt effectual Remedy is the ſciſsars — Pulv. Sabin. — The Sciſsars however are beſt, & the Warts muſt be cut pretty deep. — ſhould they appear about the Anus you muſt alſo cut them off. —

Melancholy. This is often confounded with the Venereal Disease. — Patients are apt to ſuspect themselves not well, owing to the Ven. Disease. People, by taking a great deal of Mercury, & getting cold, are ſometimes ſeized with the Rheumatism which the Patients ſuppose to be that Disorder — But if these pains come on more than three Months after Coition, or if they remain ſtationary for 3 Months, they are not venereal. In warm Climates the Virus remains longer in the Body without appearing. Be always very cautious that you pronounce decisively in regard to this Disorder. —

Gonorrhoea. This Disease generally appears in leſs than 12 Days after Coition — ſometimes in 3, & ~~at~~ ~~at~~ others not 'till 24 Days. The Matter in a Gonorrhoea is very infectious, as Persons will ſometimes take it in a ſore, or from foul ſheets, the Glans Penis touching ye matter, or from an infected Neceſsary. Gonorrhoea without the Venl. Virus. — this is an increased ſecretion of the Mucus from the Urethra — 'tis like a Coryza in the Nose. — it may proceed from ſtrains or exceſsive Venery. Cure of that from Venl. Infection. — This is a vitiated Secretion & Excretion of Mucus. — An Injection of Caustic Alkali into the Urethra, will remove the Disease immediately — This muſt be applied in 2 or 3 hours after it is discovered or it will be of no service. — Mercury is a specific, & destroys the Virus. — 2 or 3 purges will sometimes carry it off, & when it is left to itself, it will sometimes work off — A method of conveying the Mercury by Plenck Solution ~~in~~ Injection. Rx. Ung. Merc. made without Turpentine fresh and Mild, ℥ss. — Yolk of one Egg. Solut. G. Arab. ℥i. Aq. Commun. ℥ij. — this injected twice a day — Use cooling Salts. — keep the Body open gently — Avoid drastic Purges — Phimosis, and Paraphimosis — use for these fomentations & Leadwater. — Chordé. Sleep in a pair of tight Drawers. — a Gleet. Forbid your Patient's wearing the same Breeches as in the heighth of ye Disorder — Diet — after the inflammatory Diathesis has subsided the Diet may be as usual. — Gleets are generally not infectious — If they continue in the same State for 3 months, they are not ven! — Give a little Calomel, & inject with Ung. Merc. — then brace with Bark, Steel & Cold Bath. Inject Astringents, as Claret or Port Wine, tho Port is much the best. —

Scorbutus. — a Disorder little known in this Country. — Introduce vegetable food to supply the want of Acidity in the Blood. Vinegar, Limes — The British use Sour Crout. Consult Boerhaave & Lind on this Disease. —

Elephantiasis. Hardly known in the civilized World — When food was very gross, as the fat of Animals, it appeared. —

Framboesia. Yaws — never in this Country — Give Corros. Sublim. for three Months, & then Gum. Guiac. & Bark. —

Trichoma. This Disease is frequent in Poland — it affects the hair making it all in Strings. —

Icterus. The Jaundice. A Vomit, Purge, a little Calomel & Rhubarb. — Sometimes Tonics, as Steel, Bark. — The following is Dr Bond's Theory & Practice in this Disease. It proceeds, either from Calculi in the Cystic Duct, or in the Duct. Comm. Choled. — or from a Spasmodic Stricture of the Ducts, or the Coats of the Duodenum. These Calculi lie originally at the Bottom of the Vesica fellis, but the Specific Gravity of the Bile increasing, the Calculi rise to the top of the Cyst, & are pushed on by the compression of the surrounding parts, & forced into the Duct. — This occasions the Jaundice by preventing the Bile ~~from~~ going into the Duodenum it returns by the Duct. Hepat. into the Liver, & is absorbed by the Blood, and tinges the Skin of a yellow Colour. The Disease comes on with fever, & a severe pain in the ~~Left~~ right Hypochond. The Skin is yellow, the Stools white, & the Urine of a deep Colour like strong Beer — The first thing to be done in the Cure of this Disease is to give an Emetic, which may be repeated. Castile Soap, with a little Aloes & Rhubarb. — The Stomach must be kept free, & the side to be fomented with emollients & to pressed towds. the left side, that the Calculus may perhaps be pressed into the Gut. —

Cl. IV. Locales. Caligo a Diminution of the Eye sight, when they are uncommonly used or stretched — 'tis known by the Pupil's enlarging & not contracting in light — Usefls. if from a plethora — purging — Van Swieten uses Corros. Sublim. — Electricity — Setons in the Neck — Stimulating Collyria — Setons be-
-hind

behind the Ears. Sp: Sal. Ammon. & rain water. —

Deafneſs. If it is caused by indurated wax, inject ſome soft substance into the Ear, as Soap & Water, or the latter alone. both muſt be used a little warmed — Deafneſs is sometimes cured by Snuff — keeping the head warm — gentle purging. People who lose their hearing by great sounds, are cured by a sound of equal loudneſs

Impotency. Sometimes cured by the cold Bath, or Electricity. —

O. Dysinæsia — a total suppreſsion of Speech, is often symptomatic, & is cured by removing the original Disorder —

Paraphonia. A difficulty of Speech, occasioned by a want of Tone in yᵉ Glottis & Epiglottis, or by a ſwelling inside of the Trachia — hoarseneſs a characteristic.

when this is the Case 'tis cured by rubbing the neck with ung. mercurial.

Psellismus. Stuttering. — a proper subject for the investigation of Physicians — there is too great an impetuosity of air, & motion of the lips — 'tis cured by ſlow ſpeaking, & not being embarassed — ſinging will ſometimes cure it — ſlow at first, & then quicker.

Strabismus. Squinting. a weakneſs of the Pupil of the Eye — 'tis produced ſeveral ways — in Children by looking sideways at a light — 'tis here cured by putting on the Child, a pair of ſpectacles made of a card, with holes cut in the oppoſite ſide to the natural state of the Pupil

Epiphora. An involuntary Discharge of humour from the Eye — the Lachrymal Sac diseased — treat it as an Ulcer — give Cathartics — Uſe

Ung. merc. — keep the Patient low.

Ptyalismus. Sometimes symptomatic — cured by Purges, & exciting the Discharge of other humours. — Sulphur.

Enuresis. An involuntary Discharge of Urine — old men are ſometimes subject to this disease — arises from ~~the~~ a weakneſs of the Muscles, & a Paralysis of the neck of the Bladder — Remedies — Bark — Cantharides taken internally. — Blisters —

Catarrh of the Bladder. A preternatural Discharge of Mucus from the neck of the bladder — in persons subject to the Gravel — Cure. a weak Tincture of Catharid. — Spt. Terebinth. in ſmall doses, continued for a long time. Cold Bath. —

Ischuria. Arises from a variety of

Causes — from a fault of the Urethra, Bladder, or Kidneys — from Coſtiveneſs — 'tis known by a pain in the Back, & vomiting — If the Patient is plethoric, use V.S. — anodines — open the bowells with warm Clysters — warm Bath — gentle Diuretics — diluting drinks — when it pro=ceeds from little ſtones getting into the Ureters, then vomiting is of service — After Diuretics & Antispasmodics have failed, there is no other remedy but drawing it off by a Catheter — women with Child are ſubject to this Disease — their Bow=ells muſt be kept open — When Carun=cles are the occasion, from the Venereal Disease, Bougies muſt be used —

O. Tumores — Schirrus — affects chiefly the glandular parts. — use Ung. Merc.

Cancer. The parts moſt liable to this disorder, are those moſt subject to the Air, & moſt exposed to irritation — often ſeen in the face, & lips — & as a very trifling sore may terminate in a Cancer, they ſhould be attended to, particularly one in the Lip — Cancers differ in degree, tho' originally the ſame — when they are ſeated near the Glands & Lymphatics, they are attended with more danger — they Lymphat: absorb the cancerous matter, & carry it to the Glands — If it is ſeated on the nose, tis ſeldom dangerous. more ſo, when on the private parts. — Tis either occult or ulcerated, the former not ſo dangerous as the latter — *Remedies* — internally, Mercury & Corrosive Sublimate have been used — narcotic Subſtances — Cicuta is gently narcotic — eases pain — The Diet Vegetable, bland & mild — these ſeldom affect a cure, without powerful external Remedies — When Cancers are in our reach, they do not affect the whole Syſtem, & are not incurable if taken in time — There are two Remedies in use for the cure of the Cancer — Extirpation, & the Caustic — when it is occult, use the Knife, & in ulcerated Cancers it is preferable to the Caustic. The mineral Caustics ~~[illegible]~~ moſt serviceable are Lunar Caustic, Lap. Infernal. Vegetable Caustics are however beſt — ye minl Caustic destroys ſound parts as well as unſound, while the vegetable does not — Dr Bonds Powder was of the latter kind, as also Dr Martin's — 'tis acrid, but ſafe — destroys the dead fleſh, & leaves no eschar — a Country man in Suſsex, cured the Cancer, with a ſtrong Decoction of Ever-green — Sumach cured a negroe — Powder of the Poke-root has been used — if it breaks out afreſh, apply the powder — if it ſhould appear in other parts, try the Knife, or Caustic — This Disease is certainly curable —

Sarcoma, a fleſhy excreſcence — cured by excision —

Lupia. a large Tumor, moveable & ſoft, accompanied with a laxity of the Syſtem — they ſhould be opened from & it is beſt done by a Caustic. —

Hydarthrus. Occupies the Joints — early apply bliſters round the whole Joint & keep them running long. White ſwelling

Prolapsus Ani. moſtly in Children. tis easily replaced, with a towell, & putting the thumb up the anus — apply a Bandage, with aſtringent Decoct. & alum.

Prolapsus Uteri. — The whole Syſtem ſhould be ſtrengthened — use Peſsaries.

Vulnus. Gunſhot — ſee Ranby a Limb ſhould not always be amputated where the Joint is injured, as there are ſome inſtances of Cures, tho' not many.

Wounds thro' the bones of the foot are not ſo dangerous as those of the Joint —

Tinea Capitis. — Scald head. — Take equal parts of Tar & hogs lard, & let the head be covered with this every night —

Psora. Ung. Sulphurat. — the Patient ſhould not expose himself too ſoon to the cold after rubbing — Præcip. alb. — a ſtrong Decoction of Poke-root. —

Diseases of Children.

Apthæ. This they are generally affected with in the first month — ſprinkle the tongue, &c, with Borax, or Bol. Armen — purge with magnes. alb. or Rhubarb —

Dentition. Symptoms — Vomiting of Bile with a Diarrhœa & ſometimes Convulsions. Cure. — L. L. if a fever, a little Nitre — if the teeth are nearly thro', cut the Gum.

Vomiting & Purging. This Disease is peculiar to America chiefly. Makes its appearance in the Summer Months. *Symptoms*. vomiting of Bile, frequent stools, fever, coldness of the extremities — fever greatest in the evening. — *Causes*. supposed from Dentition & worms, but this is not certain — ~~so~~ it is a bilious remitt.t & depends on weakness — *Cure*. the same with the common Remitt. fever — 'tis difficult — more Children die about the 10th month, than at any other period — First give Antimonial Vomits. Tart. Emet. or Vin. Antim. — Ipecacuan. — Tart. Emet. may repeated occasionally. — When there is a Cholera Morbus, be sparing of Vomits — use Laud. Liq. — Purges — Castor Oil. Magnesia — *Tonic Remedies*. Bark mixed with ~~that~~ Nutmeg, & cinnamon — Testaceous powders — fomentations, — Astringents — Black-berry root — Stomach Plaister — Clysters of Starch, & L.L. — Blisters are of service, tho' when a Septic Diathesis prevails, they are hurtful — Cold Bath of great ſervice — Country air never fails — this Disorder is never fatal in ye Country.

Preventatives. cleanlineſs — in the Summer months wine — ſalt meat occasionally — Country air —

Worms. these are the causes of other Diseases — they exist in all young animals. — they are in weak Children only, a Disease. Tis doubtful if there is ſuch a thing as the worm fever — they are ſometimes the effect of fever — from Intermittents & the Small Pox — they chiefly produce ſpasmodic & chronic Diseases — they increase the symptoms of fever, but never produce an idiopathic one — Symptoms. Pains — picking of the nose — fits — ſtartings — these however are not to be depended on — one Symptom is certain, the Discharge of them.

Cure. Vomits — purges of Jalap & Calomel — Tin, & Cowitch from the Weſt Indies —

Steel — Tonics, as Bark Poplar do. Rhubarb, or aloes — Salts, acid, neutral or metallic, acid ſalts, as claret, Vinegar — common ſalt — the quickeſt Remedy. Nitre — Vitriols of all kinds. Corros. Sub. 1/10 of a gr. every morning — a few drops of Spt. Terebinth. Sacharine ſubſtances as honey, Molaſses, Sugar & ripe fruit — Juice of Black cherries, Raspberries, Blackberries, Whortleberries — To prevent worms give ripe fruit & ſweet ſubſtances, Sugar, honey, or molaſses — Narcotics, as Pink root, Cabbage root, Stramonium, bears foot, purges are useful after these remedies — Worms are often killed when they do not appear — the remedies ſhould be given about the full & change of the moon — worms propogate in Knots — poſseſs both parts of generation — copulate mutually.

Cure of Intermitting Fevers

Just before the coming on of the fit give a pretty large Anodine — or Pulv. Cort. Peruv. ℥ss. if the Stomach will bear it. — during the hot stage, weak Punch, & other acidulated Drinks — In the Intermission, give Peruvian Bark, the Bark of White oak, Dogwood, Poplar, & black-cherry tree — Spiders web — a Spider roasted in a crumb of bread, & this afterwards made into pills & taken — this acts as a ſedative, as Spiders are of a poisonous quality — The P. Bark may be given conveniently in Port or Claret, but especially in milk, & it ought to be given immediately after mixing — P. Bark may be also given in Glysters when the Stomach will not bear it in a ſufficient quantity — The bark Jacket ſeldom attended with very good effects —

The Bark of the Dog wood, Poplar, &c. ſhould be given in a very strong Decoc=tion — Arsenic is sometimes used, tho' it is dangerous, as it acts so violently, & is of a poisonous nature — Vinegar & Garlic have been given, as also Alum & Nutmeg. — Riding on horse-back just before the attack, is of service.

Paronychia, is resolved by holding the finger in hot vinegar, boiling if poſsible — If it is already formed, the finger ſhould be laid open to the Bone —

Burns. If they cause a great fe=ver, it will be neceſsary to use V.S. — the body muſt be kept open — otherwise use a Bread & Milk Poultice, with Ext. Saturn. & an Ung. Ceratum, with Extract. Saturn. —

Ophthalmia. Topical bleeding — cupping & Leeches — Blisters, either behind the Ears, or on the Temple about half an inch from the Eye — Cold applications — purging, with Salts especially Bread, moistened with Ext. Sat. & laid to the Eye, & often renewed — The Patient ſhould be kept in a dark Room — a Handkerchief tied over the eye is of hurt, as it causes too great a heat in the part — low diet — not ſlops, but ſomething yt. fills the Stomach, yet affords little nourishment — as roasted apples, turnips, potatoes, &c. A Collyrium mad of rain water & L. L. & used frequently thro' ye. day — a very weak mineral water may also be used — When this disease is symptomatic, ~~it~~ & proceeds either from ſcrophulous or febricose habits, it may be cured by the Bark — it ſometimes proceeds from the drying up of some customary Evacuation, in which case the Drains are to be again open, blisters applied, &c — Sometimes from a want of Moisture, as we ſee in Children, when the ſecretions from the ſebaceous Glands are ſtopped. In this Case an Ung. made of equal pts of Lap. Calaminar. & Butter applied to ye Eyelids, supplies the want — In an Ophth. from a Ven. taint, it is to be treated with mercury — ſometimes the internal part of the eye lids are turned outwards — ſcarifications on these internal parts, are of service —

In the Phlegmasiæ, Parts that are affected by the Cold and are frozen, may may be taken notice of — In this case they are to be kept from the fire, and either rubbed with Snow, or put into cold water, untill ſuch time as the pain ſhall cease, — afterwards cooling applications, particularly Extract. Saturn. —

Phrenitis. The Idiopathic kind ſeldom happens — requires large bleedings as near the part as poſsible — the Jugular may here be opened to advantage.

Purges of the cooling kind — Blisters applied to the back of the neck — the Patient should be kept cool, in a dark Room & free from noise — a symptomatic Phrenitis is cured by removing the original disorder — Warm Pediluvia is of service in the Phrenitis. —

Quinsy, is of five kinds — 1st Inflammatory (Tonsillaris) — this requires the common method of treating inflammation — large bleedings however, are not useful — the steams of warm water & vinegar drawn into the throat by a funnel are of service — purges — leeches set upon the externl. fauces — blisters applied round the neck like a stock — As this disease proceeds from cold, it will be necessary to keep the patient warm — 2d Malignant — is contagious — produces great debility. In the first an Emet. is to be given, & then such medicines as are antiseptic. — Bark may be given throughout this disease — acids — the mouth and throat to be washed with sage tea, vinegar & honey. Avoid bleeding & purging, unless an inflammatory Diathesis should require it — If the tumor is large, a blister may be applied to the throat —

3d. Trachealis. Hives. an inflammation of the

Trachea — a Collection of Mucus in the Trachea, which in time becomes membraneous, & ſuffocates the Patient — It is known by a croaking kind of voice, like the barking of a Dog. — in respiration, a wheezing is heard — Bleed & purge — give a vomit as ſoon as poſsible, whh. will looſen the forming Membrane of the Trachea & gives relief — 4th *Pharyngœa*. — This is nearly the ſame with the firſt species, only the inflammation extends to ye top of the Œsophagus. requires bleeding, purging, & ye antiphlogistic treatment — 5th *Parotidœa*. Mumps. Often contagious — It increases till the fourth day, & then decreases — when the ſwelling is going down it often affects the Testicles in Men & Breasts in women — tis not dangerous — requires ye parts to be kept from cold, & moistened with Goose grease, &c — a purge may be given —

Pleuritis, & *Peripneumonia*. The Distinction between these two diseases is ſo trifling that it is not neceſsary to treat them ſeperately. The symptoms of both are nearly the ſame — a high pulse — pyrexia — difficulty of breathing. — Cough — great pain difft. parts of the Thorax.

ſometimes in the right ſide, [illegible] the left, in the Back, breast, about the ſhoulder blade — 'tis intense on a full inspiration — towards ye 5th or 6th day, an Expectoration generally comes on — __Cure__. V. S. in the arm of the ſide affected, if convenient — it ſhould be large, & drawn from a large orifice — V. S. must be repeated, as long as the pain, or difficulty of breathing continues, & the pulse is full & high — V. S. has been repeated in this disease, 13 times, to the quantity of 150 ℥. — cooling purges, or clysters — Tart. Emet. given in nauseating doses, or Oxym. Scillit. given for the ſame purpose — care must be taken not to vomit — Decoction of ſenecka ſnake-root. a dram infused in a quart of hot water, & a tea cupful given every hour — Oxym. Scillit. given in a more advanced ſtage for an expectorant — flaxseed tea, or barley water, ſweetened with honey, & acidulated with lime juice, or vinegar — Blisters also are of great ſervice — One may be applied to the part where the pain is immediately after the first bleeding — to be renewed as often as the pain moves, & as long as it continues — towards

86. Towards the latter end of the Disease, a ~~sub~~ stubborn pain remains about the Thorax, wh^t must be removed at any rate, if possible; as from thence proceed very often Consumptions. This may be done by bleedings, or repeated Blisters — When Pneumonia is accompanied with Synochus or Typhus, it will not admit of frequent bleedings, but blisters are to be freely used — Volatile Resolvers — When these disorders proceed from wounds in the Lungs, they are to be treated much the same as the former — In all pleurisies the Patient is to be kept cool — Slight wounds of the Lungs made with a Sword, sometimes prove Mortal from their causing a suffusion, & immediate Death follows — after this manner Peripneumonia notha prove fatal, by bringing on a suffocation — the Symptoms of this disease, are a sudden great difficulty of breathing. As it generally happens at ye end of Perip. vera, the pulse is small — this must not however prevent bleeding, which must be done immediately — Towards the 4th day of a Pneumon. an anodine may be given every night —

Gastritis. Inflammation of the Coats of the Stomach — the cure is, Blisters applied to the Stomach. — When this disorder proceeds from drinking *Cold Water*, when the body is very warm, sudden death often ensues; tho' sometimes it ends only in inflammation — in this Case large Doses of L. L. are to be given, as the only means of saving the Patients Life — to prevent the ill effects of cold water — wet your feet, or hands, wash your mouth, or hold the Veſsel sometime in your hands before you drink — Mix Spirits with ye water.

Dr. Rush's *Advice* to his *Pupils*, upon *entering* the *World* —

There are 3 ways of getting into busineſs — 1. some succeed by aſsuming *Gravity* altogether — this procures them respect & admiration, but never begets Love or esteem. 2. Another way is to adopt as many oddities as poſsible in ~~their~~ Dreſs, behaviour &c — of this sort was *Paracelsus*, *Pitcairn*, and *Porterfield* — This may excite the admiration of the Multitude, but never will gain the

Esteem of Men of Sense — this behav. com
may be useful perhaps, in nervous Disorders.
3d. The beſt method of Introduction is to u-
nite the Virtues of a Man & a Physician
to those of a Christian — I would particularly
recommend Charity to the Poor — to pay
an especial attention to them when ſick, —
You will then ſee disorders in their genuine
ſtate, & in a greater Variety — There are
Persons too who you ſhould not charge.
Physicians & their families — Clergy-
men, & theirs — nor the hired Servants,
of families where you are well paid —
And in a time of War, when ſick or wound-
ed Officers or Soldiers fall under your
Care, never charge them — — — —

Nonnulla desunt. —

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